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Zirconium and Yttrium (p,d) Surrogate Nuclear Reactions: Measurement and determination of gamma-ray probabilities: Experimental Physics Report

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Experimental Physics Report

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This technical report documents the surrogate reaction method and experimental results used to determine the desired neutron induced cross sections of ^{87}Y(n,g) and the known ^{90}Zr(n,g) cross section. This experiment was performed at the STARLiTeR apparatus located at Texas A&M Cyclotron Institute using the K150 Cyclotron which produced a 28.56 MeV proton beam. The proton beam impinged on Y and Zr targets to produce the nuclear reactions ^{89}Y(p,d)^{88}Y and ^{92}Zr(p,d)^{91}Zr. Both particle singles data and particle-gamma ray coincident data were measured during the experiment. This data was used to determine the γ-ray probability as a function of energy for these reactions. The results for the γ-ray probabilities as a function of energy for both these nuclei are documented here. For completeness, extensive tabulated and graphical results are provided in the appendices.

Contents

I. INTRODUCTION

Neutron reactions on short lived isotopes are difficult to measure due to the high specific activity of the targets. An alternative technique has been developed over the past decade called the surrogate technique which has resulted a renewed interest in low energy direct reaction physics [1–25]. The surrogate technique uses charged particle beams to produce the same parent nucleus that would be produced by the desired reaction on the target nucleus, see Fig.1. Many types of direct reactions can be used to produce the correct parent nucleus i.e.: pick-up reactions (p,d), (p,t) or (^{3}He,^{4}He); a transfer reaction (d,p); or inelastic scattering reactions (p,p'), (d,d'), (^{3}He,^{3}He'), (^{4}He,^{4}He'). In this body of research we used the (p,d) reaction on isotopically enriched targets of ^{89}Y, ^{90}Zr, ^{91}Zr, ^{92}Zr, ^{94}Zr, ^{96}Zr. The reactions allowed a determination of the energy dependent gamma ray probabilities for a number of transitions in the nuclei that were created. These results were interpreted using reaction models to determine the ^{87}Y(n,γ) and ^{90}Zr(n,γ) cross sections. In this case, the ^{90}Zr(n,γ) cross section was used as a benchmark to ensure that the experiment and modeling results are accurate and precise. Numerous measurements and modeling calculations exist for the ^{90}Zr(n,γ) reaction [26–49].

In the following sections we will discuss the experimental details, data analysis, experimental results and finally the ^{90}Zr(n,γ) and ^{87}Y(n,γ) gamma ray probabilities used to determine the cross sections.

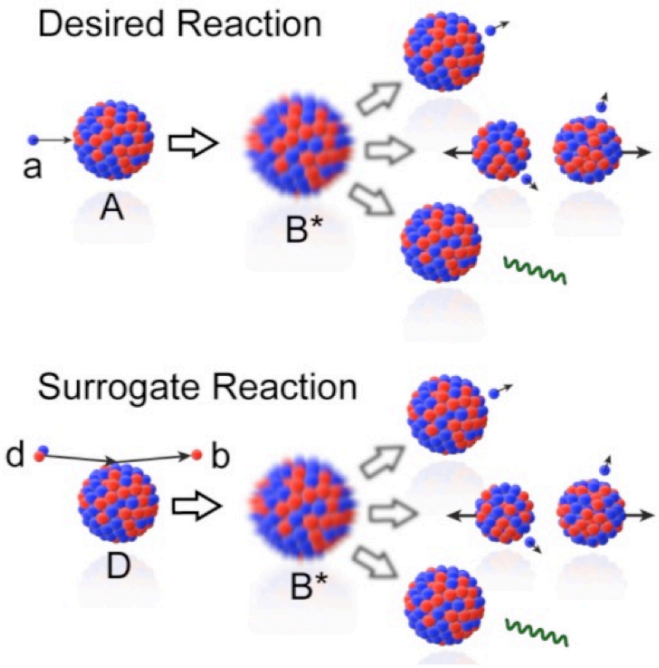

FIG. 1: The "Desired Reaction" is shown on top where a neutron (a) impinges on a target nucleus (A) and creates an excited compound nucleus (B*). The "Surrogate Reaction" is shown on the bottom where a charged particle reaction (d,b) occurs on a surrogate target D to create the same compound nucleus (B*) as in the "Desired Reaction".

II. MOTIVATION

The goal of this set of experiments is to benchmark the (p,d) surrogate reaction in the Y/Zr region and determine the unknown neutron capture cross sections. The benchmark reaction for this region was chosen to be $^{90}Zr(n,\gamma)$ using the surrogate reaction $^{92}Zr(p,d)$ due to the existence of direct measurements, see Fig.2. The ^{92}Zr nucleus is stable, but not naturally mono-isotopic. ^{91}Zr and ^{90}Zr nuclei both have low lying isomers which can complicate the understanding of the γ-ray cascade, see Fig.3. Similarly, Yttrium isotopes being studied here have multiple isomers at low energies which an experimentalist has to be aware of when analyzing the data, see Fig.4. The isomers also limit the number of useful γ-rays which can be used to determine the cross sections.

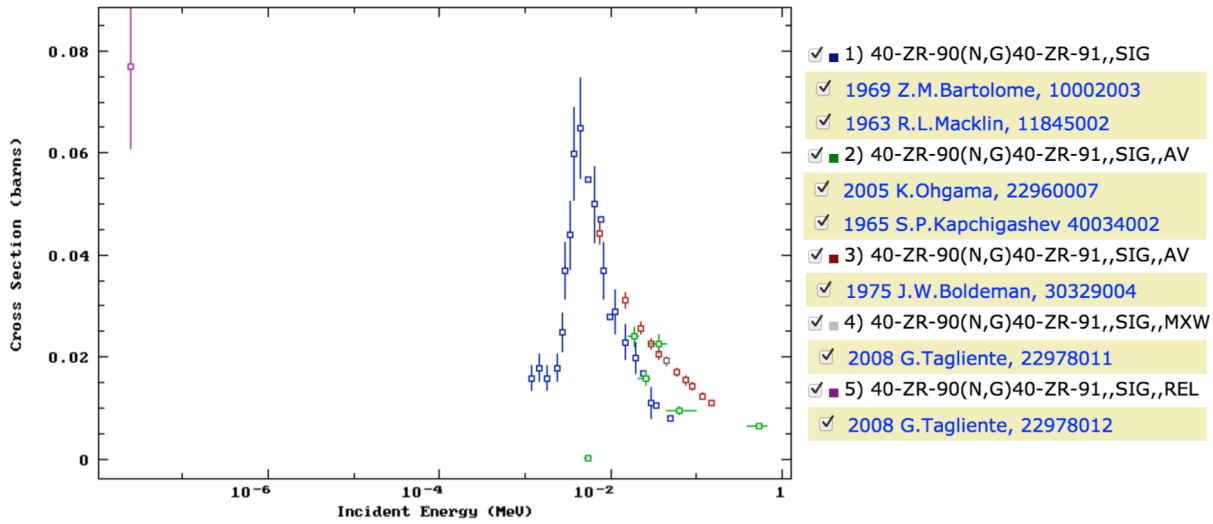

FIG. 2: $^{90}Zr(n,\gamma)$ cross section from direct neutron measurements from the National Nuclear Data Center ExFor database.

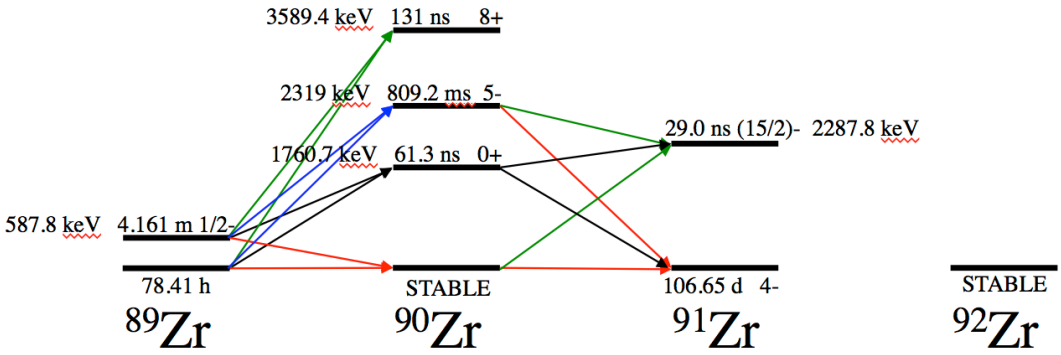

FIG. 3: The nuclear structure of the ground and isomeric states of Zirconium-89,90,91.

III. THE EXPERIMENTAL SETUP

This experiment was conducted at the Texas A&M Cyclotron Institute using the K150 Cyclotron. A proton beam with an energy 28.56 MeV and a current on the order of a nanoAmpere was produced by the K150 Cyclotron and delivered to the STARLiTeR apparatus. The experiment was conducted over a period of 13 days for a total of 312 hours of beam time. During the experiment the ^{89}Y, Zr isotopes, ^{nat}C and blank target frames were irradiated one after another on a rotating basis. Yttrium is mono-isotopic with ^{89}Y the only stable isotope. Isotopically enriched ^{90,91,92,94,96}Zr targets were used for the benchmark measurement of $^{90}Zr(n,\gamma)$. The ^{9x}Zr isotope data was taken so that a background subtraction of the particle singles spectra could be performed. A natural abundance carbon target was also measured as ^{12}C and ^{16}O were minor contaminants in all the targets. In the following sections we discuss the details of the STARLiTeR apparatus, targets, gamma ray energy and efficiency calibrations, data acquisition system, data analysis and results.

A. STARLiTeR Detector Array

The STARLiTeR detector array is located at the Texas A&M Cyclotron Institute on a dedicated beam line which can receive particle beams from the K150 or the K500 Cyclotrons. For this experiment, the K150 Cyclotron delivered a 28.56 MeV proton beam to the STARLiTeR apparatus. The STARLiTeR detector array consists of silicon particle detectors and HPGe gamma ray detectors. Scattered particles from nuclear reactions in the target are detected by the silicon detectors. Multiple Micron S2 double sided silicon detectors (DSSD) were used to make a detector

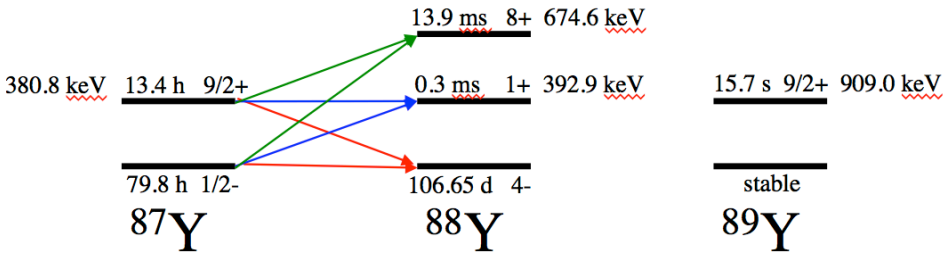

FIG. 4: The nuclear structure of the ground and isomeric states of Yttrium-87,88,89.

telescope consisting of a 150 μm, 1000 μm and 1000 μm thick detectors as shown in Figure 5. The rings of the detectors were merged together to provide 24 rings in the radial direction (theta) and 8 sectors (phi) with respect to the beam. This configuration allows for the angular (theta and phi) determination of the outgoing particles and their energy. The three detectors combined require a read out of 96 channels (96 energy and 96 timing channels) of electronics which is described in section IV. The Eurysis HPGe Clover detectors consist of 4 HPGe leaves per clover with a BGO veto shield surrounding the entire clover detector as shown in Figure 6 and Figure 7. A single clover leaf is nominally a 50 mm x 50 mm x 80 mm rectangular piece of high purity germanium. The four leaves of a clover are close packed to form the overall detector volume. The clover array and BGO shield energies and times are recorded with the electronics described in section IV.

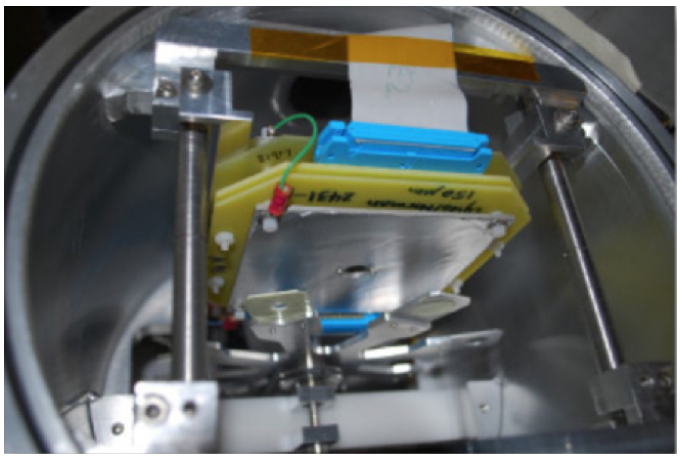

FIG. 5: The STARLiTeR chamber with silicon telescope array and target wheel. The beam enters from the bottom and passes through the target, through the center of the delta-shield and then exits the chamber out of a port on the downstream side. The target wheel can hold up to 8 targets at a time. The delta-shield stops low energy δ-electrons and prevents them from charging up the silicon detectors. The silicon telescope consists of a 150, 1000 and 1000 micron thick Micron Semiconductor S2 silicon detector pack. The detectors are held in the exact center of the STARLiTeR chamber by aluminum rails and mounting brackets.

B. Targets

The isotopically enriched targets were obtained from Oak Ridge National Laboratory. The targets were fabricated by mechanical rolling to an approximate thickness of 1 mg per cm^2. The ^{89}Y target has an abundance of 99.98 % and a thickness of 0.76 mg per cm^2. The isotopic abundances and areal densities of the Zr targets are summarized in Table I.

These percentages combined with the integrated beam current and average live time are used in combination to add and subtract the particle singles spectra in order to produce a pure particle singles spectrum for each isotope. A matrix of the target relative abundances was inverted in order to determine how to isolate a pure particle singles spectrum using combinations of the particle spectra obtained from each target. The inverse of the isotopic abundance

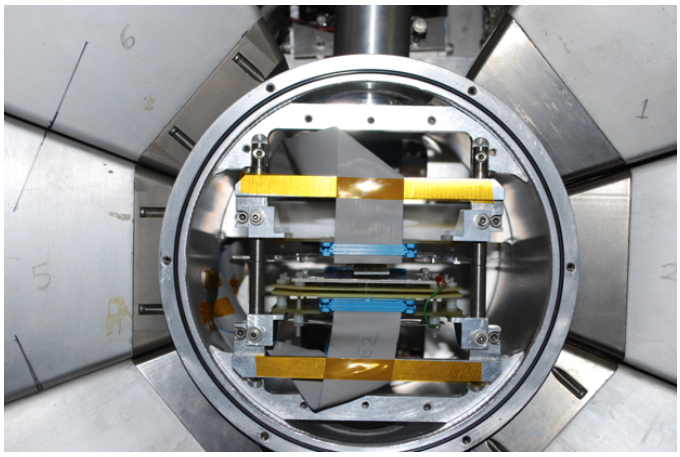

FIG. 6: The STARLiTeR chamber with silicon telescope installed and surrounded by 6 BGO shielded HPGe clover detectors. Note that only 5 HPGe clover detectors were useable at the time of this experiment.

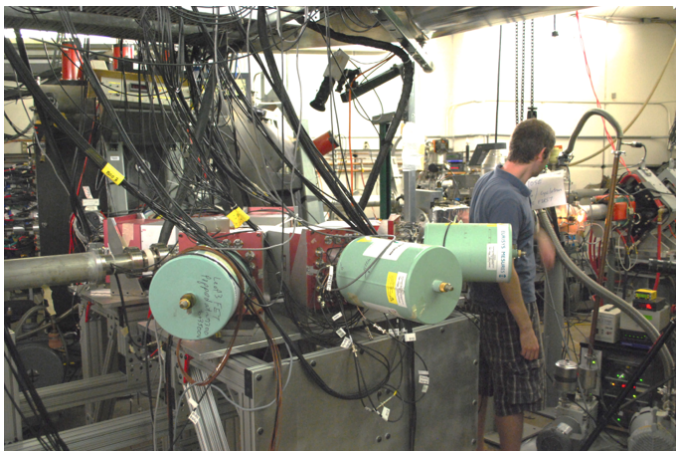

FIG. 7: The STARLiTeR chamber with silicon telescope installed and surrounded by 6 BGO shielded HPGe clover detectors.

matrix is shown here;

$$\begin{pmatrix} {}^{90}Zr_{pure} \\ {}^{91}Zr_{pure} \\ {}^{92}Zr_{pure} \\ {}^{94}Zr_{pure} \\ {}^{96}Zr_{pure} \end{pmatrix} = \begin{pmatrix} 1.006790 & -0.003366 & -0.001487 & -0.001151 & -0.000688 \\ -0.072346 & 1.130950 & -0.037164 & -0.018237 & -0.003206 \\ -0.028991 & -0.015180 & 1.058820 & -0.0122467 & -0.002516 \\ -0.021198 & -0.008100 & -0.009410 & 1.038920 & -0.000228 \\ -0.143450 & -0.031494 & -0.499853 & -0.069800 & 1.744810 \end{pmatrix} \begin{pmatrix} "{}^{90}Zr" \\ "{}^{91}Zr" \\ "{}^{92}Zr" \\ "{}^{94}Zr" \\ "{}^{96}Zr" \end{pmatrix}$$

This solution was applied to the particle singles spectra and the results of this orthogonalization will be examined in the data analysis section.

C. Gamma Ray Energy and Efficiency Calibration

The efficiency of the clover array was measured using a set of calibrated NIST traceable gamma ray sources. Before the experiment the clovers were gain matched using sealed sources such as ^{22}Na, ^{60}Co and ^{137}Cs. After the run, the same gamma ray sources were placed at the exact center of the target location inside the chamber. All of the detectors and cabling were left exactly as they had been positioned during the experiment. Data was then recorded for a period sufficient to get enough statistics per clover detector leaf to make an accurate and precise determination of the energy dependent gamma ray efficiency. Multiple sources were used in the same manner to cover an energy range from 88 keV to 1.332 keV and are summarized in Table II. The function used to determine the energy calibration is

TABLE I: Summary of the isotopic abundances of the enriched Zr targets. The target name is listed in the left hand column. The relative abundances of the isotope in the target are listed in the row following to the right. For instance the "^{90}Zr" target is composed of 99.36% ^{90}Zr, 0.3% ^{91}Zr, 0.17% ^{92}Zr, 0.12% ^{94}Zr and 0.04% ^{96}Zr.

Target	Zr90 (%)	Zr91 (%)	Zr92 (%)	Zr94 (%)	Zr96 (%)	Areal density $\frac{(mg)}{(cm^2)}$
"Zr90"	99.36	0.3	0.17	0.12	0.04	1.02
"Zr91"	6.51	88.5	3.21	1.61	0.17	1.01
"Zr92"	2.86	1.29	94.57	1.15	0.14	0.960
"Zr94"	2.11	0.71	0.89	96.28	0.016	0.960
"Zr96"	9.19	2.02	27.20	4.22	57.36	0.976

$$E_\gamma = a + x \times b + c\sqrt{x} \tag{1}$$

where E_γ is the gamma ray energy, x is the channel value from the ADC for a given leaf, a is a constant offset, b is a factor proportional to channel number and c is a factor proportional to the square root of the channel number. The parameters used to determine the energy are listed in Table III. The 1σ energy resolution of the 5 clover array was determined to be 1.5 keV using the calibration sources.

TABLE II: Summary of the gamma ray sources activities, branching ratios and internal conversion coefficients. The source activities have a one sigma uncertainty of 1.2%.

Parent Nucleus	Activity (uCi)	Activity Unc. (uCi)	Gamma Ray Energy (keV)	Branching Ratio (%)
Ba133	1.015	0.012	80.9979	32.9
Cd109	0.9686	0.012	88.034	3.70
Ba133	1.015	0.012	276.3938	7.16
Ba133	1.015	0.012	302.8508	18.34
Ba133	1.015	0.012	356.0129	18.34
Ba133	1.015	0.012	383.8485	8.94
Na22	0.955	0.011	511.0	1.63
Cs137	1.008	0.012	661.657	85.10
Mn54	0.967	0.012	838.848	99.98
Co60	0.984	0.012	1173.228	99.85
Na22	0.955	0.011	1274.537	99.94
Co60	0.984	0.012	1332.492	99.98

The gamma ray efficiency was determined by taking the number of observed gamma rays in a photopeak and dividing it by the number of expected gamma rays during the counting period. The number of expected gamma rays was determined from the source activity on its calibration date and then decayed according to the isotopes half-life to the activity it would have on the date of the calibration measurement. The number of events was corrected for the live time of the data acquisition system which ranged between 70 to 95 percent live time depending on the source being used. The gamma ray detectors for this experiment are clover detectors. In order to maximize the efficiency for high (>1 MeV) gamma rays we add back all coincident events in the clover leaves that are prompt in time to create a single gamma ray event for that clover. The leaf elements are physically close packed to each other and by adding back the energy deposited into the neighbors we effectively get a slightly higher efficiency for higher energy events. The gamma ray array detector efficiency as determined for this experiment is shown in Fig. 8.

The gamma ray efficiency as a function of energy can be fit using the following function

$$\epsilon(E_\gamma) = (p0 \times E_\gamma + p1/E_\gamma) \times e^{(p2 \times E_\gamma + p3/E_\gamma)} \tag{2}$$

where p0, p1, p2, p3 are determined by fitting the efficiency curve for the gamma ray energies from the sources in Table II and E_γ is the energy of the gamma ray. At low energies the efficiency drops off due to attenuation of the gamma rays by the STARLiTeR chamber, the aluminum vacuum container on the clover and dead layer in the HPGe. At high energies the gamma ray efficiency drops off due to the incomplete containment of high energy events in the limited volume of germanium in the clover. The parameters determined for the efficiency curve for each clover are listed in Table IV.

TABLE III: Summary of the gamma ray energy calibration parameters.

Clover element	a	b	c
C1L1	-28.138655597436	0.732041628236	0.326434889196
C1L2	-30.865460376982	0.722719275189	0.654408281173
C1L3	-27.948331862749	0.726223690168	0.328403758867
C1L4	-32.080245378381	0.724010429534	0.632601603463
C2L1	-32.311165648209	0.749412152525	0.915871424466
C2L2	-30.313726124289	0.745777311792	0.705823622413
C2L3	-31.742788204262	0.729859133753	0.703356199264
C2L4	-31.451374829542	0.760837230147	0.351800147336
C3L1	-30.890714166762	0.736027181295	0.558454297876
C3L2	-27.083930908834	0.739763989361	0.225878934715
C3L3	-26.066653739878	0.603130801866	0.648737518391
C3L4	-30.219540826847	0.698272998458	0.645644989711
C5L1	-30.224562164772	0.700597539028	0.715958178022
C5L2	-31.291076227626	0.708088134121	0.884239797335
C5L3	-29.576003966373	0.709642424589	0.638900554405
C5L4	-24.035435806942	0.696124770063	0.070259716443
C6L1	-38.862247205702	0.938834292115	0.576079101035
C6L2	-26.888867622464	0.641186811754	0.574360853150
C6L3	-23.980657240400	0.576919018739	0.535757635756

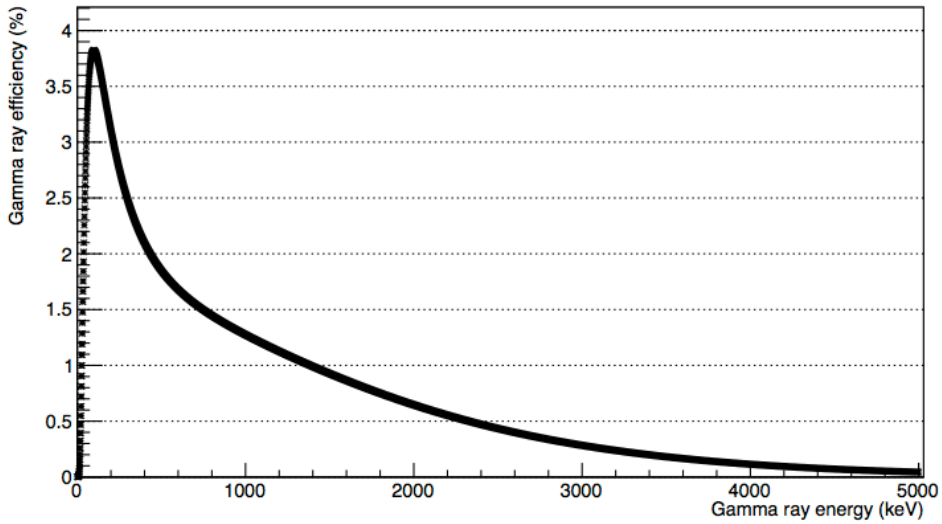

FIG. 8: Gamma ray efficiency for the 5 clover detector array with add back and BGO Compton suppression.

IV. DATA ACQUISITION

The STARLiTeR data acquisition system is a combination of Versa Module Eurocard (VME) and Nuclear Instrumentation Module (NIM) electronics. There are two main signal paths in the STARLiTeR apparatus; the silicon detector signal path and the gamma ray detector signal path. There are a total of 96 possible silicon (δE, E1, E2) channel energies and times that can be recorded for a total of 192 elements. There are 20 high purity germanium (HPGe) energy and times plus 5 BGO energy and times that can be recorded for the gamma ray signal path for a total of 60 elements.

A trigger is generated whenever there is a prompt overlap of an event in both the δE and E1 detectors. This then generates a master trigger which is distributed to the ADC and TDC modules. The silicon ADC modules receive a gate with a 4 μs width, the HPGe ADC modules receive a 6 μs width gate and the TDC receives a 1 μs gate to trigger the module. The details of the signal paths and logic are explained in detail in the following sections.

TABLE IV: Summary of the gamma ray efficiency parameters energy calibration parameters.

Clover	p0	p1	p2	p3
C1	0.000745146	258.648207516	-0.001224080	-102.782831379
C2	0.000798498	231.418796780	-0.001257218	-101.116290937
C3	0.000576812	248.462255329	-0.001053556	-115.595967550
C5	0.000764931	264.728560950	-0.001167348	-109.484006322
C6	0.000750649	194.943397499	-0.001452437	-94.116884414

1. Master oscillator and time synchronization

Due to the number of channels of data being recorded and the number of channels available in a single VME module to record them, the data signals are spread out over 5 different VME ADC modules and one TDC. In order to synchronize all the events a master oscillator is used. The master oscillator is an Agilent 33250A whose sine wave is put into a discriminator to produce a NIM level logic signal that is required by the VME ADC and TDC modules. The NIM logic signal is split into multiple signals by going through a LeCroy 429A logic fan. The common clock signal is set to a frequency of 40.000000 MHz which is the maximum frequency that can be input to the V1190A TDC module. The common clock is used as the master oscillator input to each ADC and TDC module in the data acquisition system. This results in an event time stamp of 25 ns for each module. This system wide time stamp is used to reconstruct the events offline in software. Finer timing resolution is achieved with the TDC which turns the 40.000000 MHz clock signal into a 0.1 ns time stamp through the use of an internal frequency multiplying circuit. All modules are initialized to zero time using a CAEN V977 VME logic module. First the V977 modules issues an inhibit signal to each VME module which stops all gates from being processed. Then the V977 issues a hardware clear to all VME modules which resets all the internal clock counters. Finally, the V977 inhibit signal is released which enables the DAQ to begin recording events with a common clock signal and all events are then time correlated across all the VME modules.

2. Silicon signal

The silicon detector signals originate from charged particles ionizing a path as they slow and stop in the silicon detectors. Each ring and sector is connected through a capacitor to a SWAN Charge8 pre-amp with a nominal gain of 45 mV/MeV. After the preamps the individual rings and sector signals are connected into a set of six 16 channel CAEN N568B NIM shapers. The shapers provide a fast output for timing and a slow shaped output. The gain of these shapers is adjusted so that the full energy scale expected from the particles in a given detector spans up to 10 volts which is the maximum input of the ADCs. The fast output of the shaper is connected to a set of CAEN V895 VME 16 channels discriminators. The V895 discriminators provide a NIM level OR output derived from the 16 signal channels. A single silicon detector (δE or E) has a total of 32 channels that need to be read out. The discriminators can only process 16 channels in a single module. Therefore two discriminator OR outputs from the δE detector are ORed together to provide the δE logic signal indicating an event has occurred in the δE detector. Similarly the E1 detector signals are ORed together to indicate an E1 event has occurred. Both the δE and E logic signals are put into separate gate and delay generators. The E1 logic signal from the gate and delay module is made approximately 400 ns wide and input into an AND logic unit. The δE logic signal is made approximately 100 ns wide and delayed to be in the middle of the 400 ns E1 gate and input into the same AND logic unit. When the two signals are present this constitutes the master trigger for the data acquisition system.

This master trigger is put through a veto circuit which sets the deadtime of the DAQ to a non-updating deadtime of 25 μs per event. This corresponds to a dead time of 2.5% per 1 kHz of trigger rate or 25% at 10 kHz. The slow shaped signal from the N568B shaper is input into a Mesytec MADC-32 analogue to digital converter (ADC) VME module. The Mesytec MADC-32 is a 32 channel peak sensing ADC that is gated by the master trigger. All events in the MADC-32 are time stamped using the clock signal from the master oscillator.

The individual ECL fast outputs from the CAEN V895 16 channel discriminators are used as inputs to a 128 channel CAEN V1190A VME TDC module. The timing of each silicon channel is recorded relative to the master gate signal that is generated internal to the TDC module by the external master trigger. The TDC is programmed to have a look back time window of 4 microseconds. Events 2 μs prior to the gate and 2 μs after the gate are recorded. This allows a determination of prompt and random events in the offline sorting and analysis of the data.

TABLE V: Summary of the data for the various targets.

Target	Compressed Data (GigaBytes)	Uncompressed Data (GigaBytes)	Physics Data (GigaBytes)
Y89	335	603	50
Zr90	66	119	13
Zr91	173	311	25
Zr92	300	540	47
Zr94	57	103	10
Zr96	117	211	23
Total	1046	1886	168

3. Gamma-ray signal path

The clover leaf signals are amplified by a low noise, liquid nitrogen cooled, field effect transistor (FET) then preamplified by an internal pre-amp in the clover and input into a Mesytec MSCF-16 16-channel ADC with 16 individual fast and slow shaped outputs. The slow shaped outputs are input into a Mesytec MADC-32 32-channel peak sensing ADC. The fast outputs are connected to a Philips 726 level translator in order to be able to split up the signals to record the individual timing with the TDC and combine leaf elements to produce a clover rate to record with the STRUCK scaler. The clover signal is not used to trigger the DAQ system during the experiment. All gamma ray data is taken sympathetically with a coincident particle event trigger.

4. Scaler

As an independent check on the δE detector, E detector, gamma ray, raw and live rates these signals are also directed into a STRUCK 32 channel scaler. The δE, E1 and E2 OR signals are recorded by the scaler. Similarly the clover OR signal of all 4 leaves are recorded for each of the five clovers. The live trigger rate prior to the veto circuit and the veto trigger signals are recorded with the scaler. The entire section of beam line after the STARLiTeR chamber is electrically isolated and acts as a Faraday cup to collect the beam current. The Faraday cup is magnetic suppressed using a split opposing pair circular shaped magnet designed to fit around the diameter of the beam line. The beam current integrator generates a pulse proportional to each 0.1 microCoulombs of charge collected which is recorded by the scaler. The beam current integrator signal is readout along with all the other scaler values every 1.0 seconds. This allows a determination of the instantaneous rates with a 1 second average and the results can be summed together to produce the integrated beam current. The scaler is reset to zero at the beginning of each data run and after each readout each second.

V. DATA ANALYSIS

The current data acquisition system can generate large volumes of data that are difficult to handle in a timely manner. To reduce the amount of time needed to simply read in the data from the hard disk drives a special data format and data handling process was developed. During this experiment a total of 1.046 TeraBytes of data in gzip compressed format (runxxx.mid.gz files) was taken, see Table V. The compression factor was 1.8 which lead to 1.886 TeraBytes of uncompressed data that was produced. A custom binary file format that recorded only results essential to understanding the physics of the event was created to reduce the size of the data files. The binary format reduced the file sizes by an average factor of 11 to produce runxxx.ripping files totaling only 167.8 GigaBytes. The compressed binary format also lends itself to rapid read in from the hard drive. Average speeds of 4.6 million events per second were achieved by the physics processing codes developed for this analysis. This is factor of 380 to 460 times the rate at which data was recorded during the experiment. Further speed increases in data analysis may occur due to the advent of large volume (400 GigaByte to 1 TeraByte) solid state drives. With the processes developed here we are able to process all the events produced during a 13 day (312 hour) experiment in approximately 47 minutes.

The data analysis begins with the reconstruction of the events that were read in from the various VME modules. The physical events for the silicon, HPGe and scaler are time stamped with the VME time stamp from a common clock signal derived from the master oscillator. The master oscillator provided a 40 MHz signal which results in a 25 ns time stamp interval. The events are stored on disk in whatever order they were readout of the VME modules by the VME 7805RC cpu using MIDAS. MIDAS is a simple database and transfer program that allows control of the

programming of the VME module settings and data readout. The readout of the VME modules is not correlated. In order to make the amount of raw data manageable it is converted into a custom data format which removes all extraneous header and trailer information specific to the ADC, TDC and scaler VME modules. This conversion is referred to as converting the data from midas format to binary. In the binary format the data is read and then time ordered according to the VME time stamp associated with each ADC, TDC or scaler event. This arrangement correlates all the times in sequential order with no preference given to which ADC or TDC event occurred first if they have the same time stamp. Events are sorted into time ordered format using the Quicksort algorithm from Numerical Recipes in C [50]. The time correlated data is then in a proper format for full event reconstruction. At this point the calibration parameters for the silicon detectors are read in so that events can be recoil corrected and energy loss in the various dead layers can be calculated on an event by event basis. Due to the possibility of the particle beam striking the target off center of the circular silicon detectors, all analysis is done on a pixel by pixel basis. A pixel is defined as an overlapping region of one ring and one sector in a detector. The S2 detectors used here were connected to provide 24 rings on one side and 8 sectors on the opposite side of the detector. This produces an array of 192 pixels per silicon detector with a unique scattering angle with respect to the beam axis and distance of the target to the detector.

In order for an event to be accepted it must satisfy a ray trace requirement. The ray trace is the ray determined from the two peak energy pixels in the δE-E silicon telescope and the separation between the δE and E detectors. The ray trace ensures that the origin of the event is the target and not a scattered particle from up an upstream collimator, see Fig 9. The elements are defined as follows: the rings of the detector are channels 0 through 23 and the sectors are 24 through 31. The strong correlation line that is slightly above a 45 degree line on the correlation plot are events originating from the target location. Direct beam events produce a one to one correlation similar to particles scattered from upstream collimators near the entrance of the scattering chamber. The anti-correlated events in the upper right hand corner correspond to the sectors of the detectors. They are anti-correlated because the detectors are flipped so they sit back to back which then offsets the channel numbering.

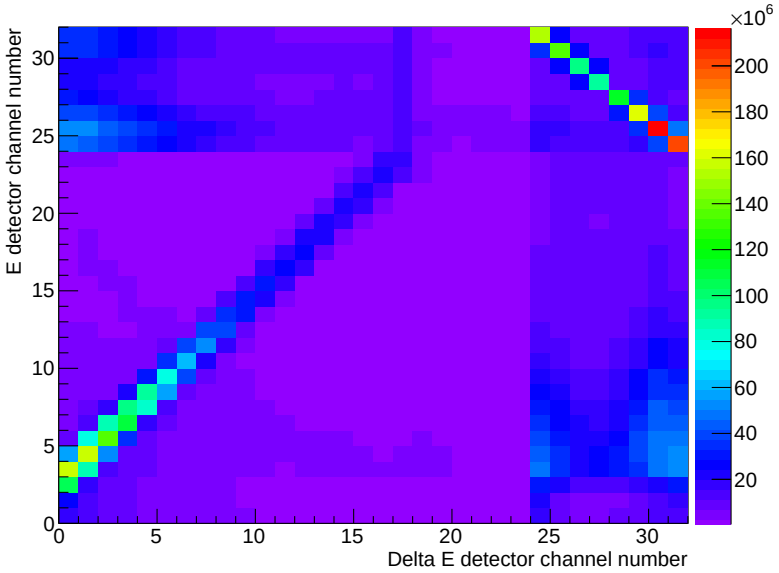

FIG. 9: Y89(p,x) E detector versus δE detector particle correlation.

Particles are identified by the differential energy loss of the charged particles in the δE and E detectors. The particle types are determined with a first pass through the data without any energy loss corrections or recoil corrections being applied. The energy deposited in the δE and E detector is used to create range energy plots which allow for a clear separation of the particle types. A range energy plot is produced by taking the energy deposited in the E detector and the total energy deposited with the relation

$$R = 0.010 * (E^{1.73}_{(\delta E+E1+E2)} - E^{1.73}_{(E1+E2)}) \tag{3}$$

and plotting it on the where the range is plotted on the y-axis and the total energy on the x-axis, see Fig 10. The x-axis projection of the range energy relation provides a very clear identification of the particles and allows one to

set ranges used to identify proton, deuteron and triton events, see Fig 11.

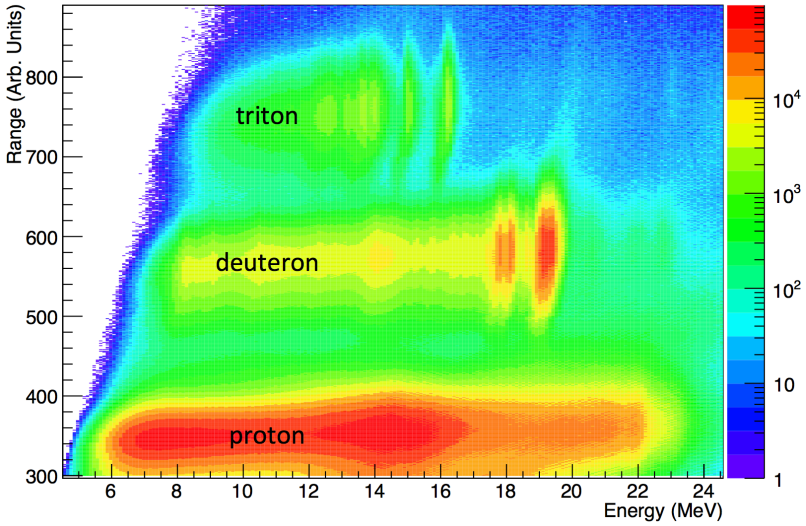

FIG. 10: ^{92}Zr(p,x) range energy plot.

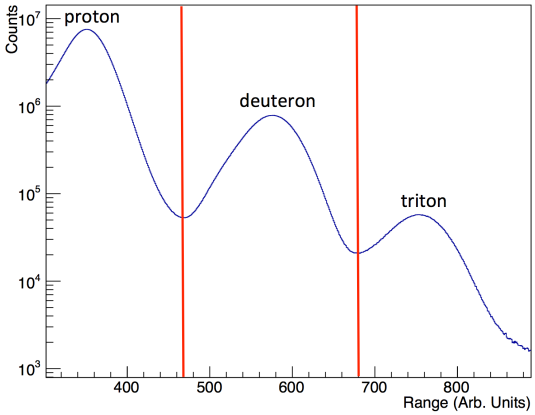

FIG. 11: ^{92}Zr(p,x) range energy projection.

The order of determining the energy of a given particle event is as follows; the energy deposited in the E detector pixel is determined, then the energy loss in the gold layers are added to the E detector value, the δE energy is added to the sum, the energy loss of the particle in the δ-shield is then determined and added to the sum and finally the nuclear recoil correction is determined and added to the final particle energy. The recoil correction also corrects for the fact that the beam spot is not in the center of the detector array. For this experiment, the center of the beam spot was determined to be off center by +1.69 mm in the x direction and -2.01 mm in the y direction. This point was in the bottom right quadrant of the detector as viewed from the beam direction, see Figure 12. The angle for each pixel (ring and sector overlap) was determined by calculating the unique distance from the target to each pixel of the detector. The angle was determined using the δ-E detector which means there were 160 angles involved (20 rings by 8 sectors). That angle was then used to determine the recoil correction for each pixel depending on the particle type and energy. Once the recoil correction was applied all particles could be examined on an equal footing and combined into a particle sum spectrum. An overall energy resolution of 1σ 80 keV energy resolution was able to be determined which represents an uncertainty of one part 2500 at 20 MeV (or a 0.4% uncertainty).

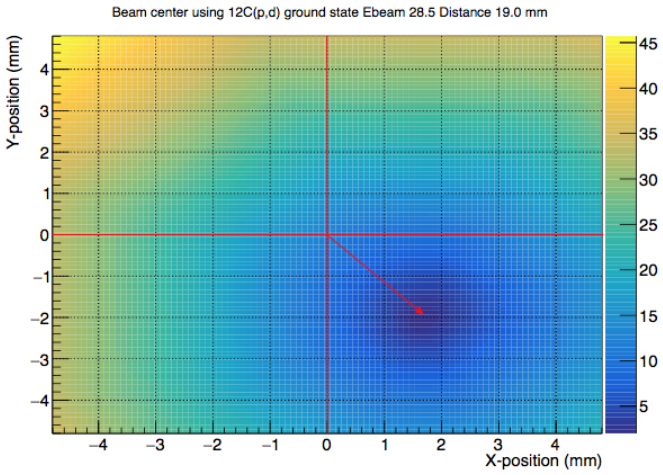

FIG. 12: The beam spot was determined using the ^{12}C(p,d) reaction. The position of the beam spot was varied using a fine grid search. What is plotted is the distance between the ground state energy for several pixels of a single ring. The minimum indicates the ground states are all lined up with one another and the beam spot represents the correct beam position for the experiment.

A. Particle Singles Data

Proton, deuteron and triton particle events were identified using the range energy plots described previously. A range cut was applied to select out deuteron events from the range energy plots. The deuteron events were then stored in arrays with 10 keV binning. Histograms of particle singles gated on deuterons were determined from the data for each target ^{89}Y, ^{90}Zr, ^{91}Zr, ^{92}Zr, ^{94}Zr, ^{96}Zr and natural carbon. Each histogram is the sum of all events integrated over the entire angle range of the silicon telescope. The ^{89}Y target is mono-isotopic, but does contain a small amount of oxygen and carbon which needs to be subtracted from the spectrum. The Zr targets are enriched, but contain 1-12 percent of other Zr isotopes as well as oxygen and carbon. For both Y and Zr the contaminant isotopes need to be background subtracted in order to obtain the pure particle singles spectrum. This is critical as the particle singles spectrum is the denominator for the gamma ray probability distribution. All physical nuclear quantities associated with the nuclei studied here are summarized in Table VI.

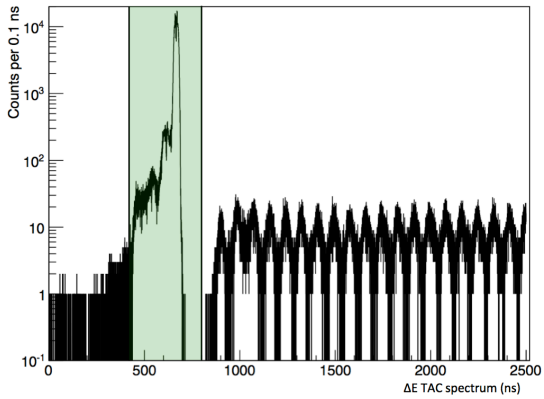

FIG. 13: δE TAC spectrum. The prompt region of the δE-detector TAC spectrum is bounded by two black lines and highlighted in green. The structure in the background region is due to the K150 cyclotron frequency.

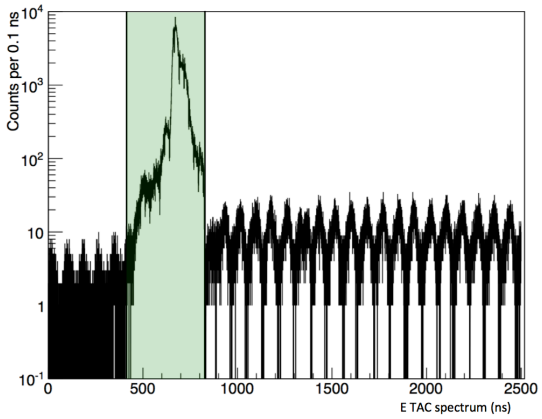

FIG. 14: E TAC spectrum. The prompt region of the E-detector TAC spectrum is bounded by two black lines and highlighted in green. The structure in the background region is due to the K150 cyclotron frequency.

TABLE VI: Summary of the nuclear physics physical constants for the reactions. For a given isotope undergoing a (p,d) nuclear reaction the Q-value, residual nucleus are listed. The neutron separation and proton separation energy are then listed for the residual nucleus created by the reaction. Finally the energy of the deuteron that is equal to the ground state of the nucleus and the equivalent neutron energy equal to zero are listed. All values are computed for a beam energy of 28.560 MeV which was determined to be the beam energy provided by the K150 Cyclotron for this experiment. The ^{11}C Sn value is so low we cannot measure it in this experiment.

Isotope	Q-value (p,d) (MeV)	Residual Nucleus	Sn (MeV)	Sp (MeV)	GS (MeV)	En = 0 (MeV)
Y89	-9.2494	Y88	9.3516	6.708	19.3106	9.959
Zr90	-9.7451	Zr89	9.3185	7.8668	18.8149	9.4964
Zr91	-4.9699	Zr90	11.970	8.3548	23.5901	11.6201
Zr92	-6.410	Zr91	7.1945	8.6922	22.150	14.9555
Zr94	-5.9965	Zr93	6.7344	9.594	22.5635	15.8291
Zr96	-5.6318	Zr95	6.4621	10.599	22.9282	16.4661
C12	-16.4969	C11	13.1197	8.6894	12.0631	N/A
O16	-13.4394	O15	13.2224	7.2970	15.1206	1.8982

B. Particle Singles Contaminant Subtraction

The particle singles spectrum was contaminated with oxygen and carbon background peaks for all targets to varying degrees. The oxygen and carbon peaks were background subtracted from the particle singles spectra using the following procedure. First, both the carbon target and the Y/Zr target particle singles spectra were recoil corrected using the oxygen mass. This produced very clearly peaks in the particle spectra correlated with the ground state and excited states of carbon and oxygen. Then the oxygen and carbon peaks from the carbon target data were scaled up to match the amplitude of the carbon and oxygen peaks in the Y/Zr spectra. Then the carbon target data was recoil corrected for the Y/Zr masses and the scaled peaks (area under the peak conserved) were background subtracted from the Y/Zr particles singles data to produce a pure spectrum.

The Zr spectra are also contaminated with various amounts of other Zr isotopes. In this case the pure ^{9x}Zr spectrum was obtained by adding and subtracting the various ^{9x}Zr particle singles spectra from each other weighted by the relative amount of isotopes in each target. The matrix used to determine the pure particle singles spectra is described in section II part B. The spectra were also weighted by the amount of integrated beam current, target thickness and live time for the data, see Table VII. Following the determination of the isotopically pure particles singles spectrum, the oxygen and carbon backgrounds were subtracted. The resulting spectra for ^{90}Zr, ^{91}Zr, ^{92}Zr, ^{94}Zr and ^{96}Zr are shown in Figures 15, 16, 17, 18 and 19.

TABLE VII: Summary of the run conditions and amount of data collected for the various targets.

Isotope	Run Time (seconds)	Avg. Beam Current (nA)	Avg. Live Time (%)	Total Number of Events (Billion)
Y89	294516	1.539	71.3	3.407
Zr90	35625	1.487	68.3	0.456
Zr91	129783	1.427	70.1	1.561
Zr92	295497	1.564	71.7	3.387
Zr94	55363	1.646	70.4	0.655
Zr96	117576	1.554	71.2	1.369

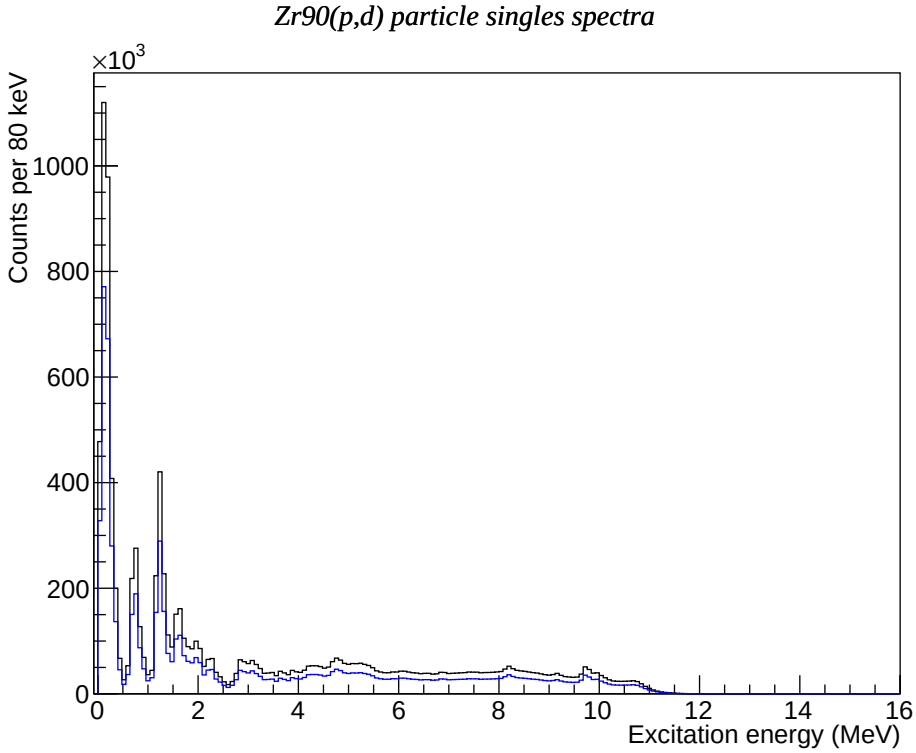

FIG. 15: ^{90}Zr(p,d) raw and isotope subtracted spectrum.

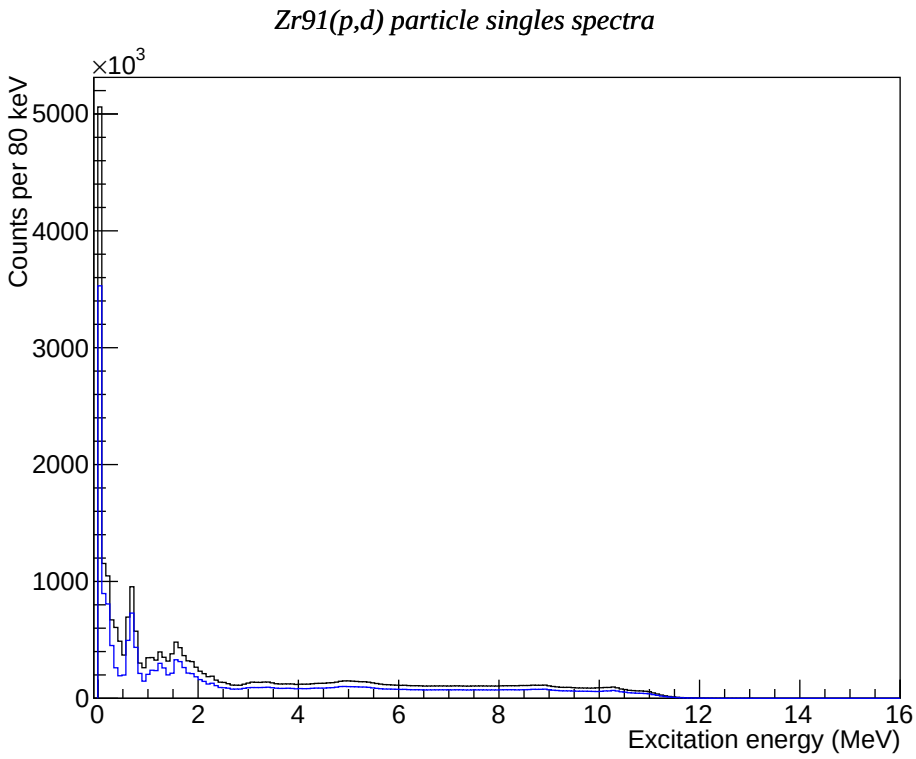

FIG. 16: ^{91}Zr(p,d) raw and isotope subtracted spectrum.

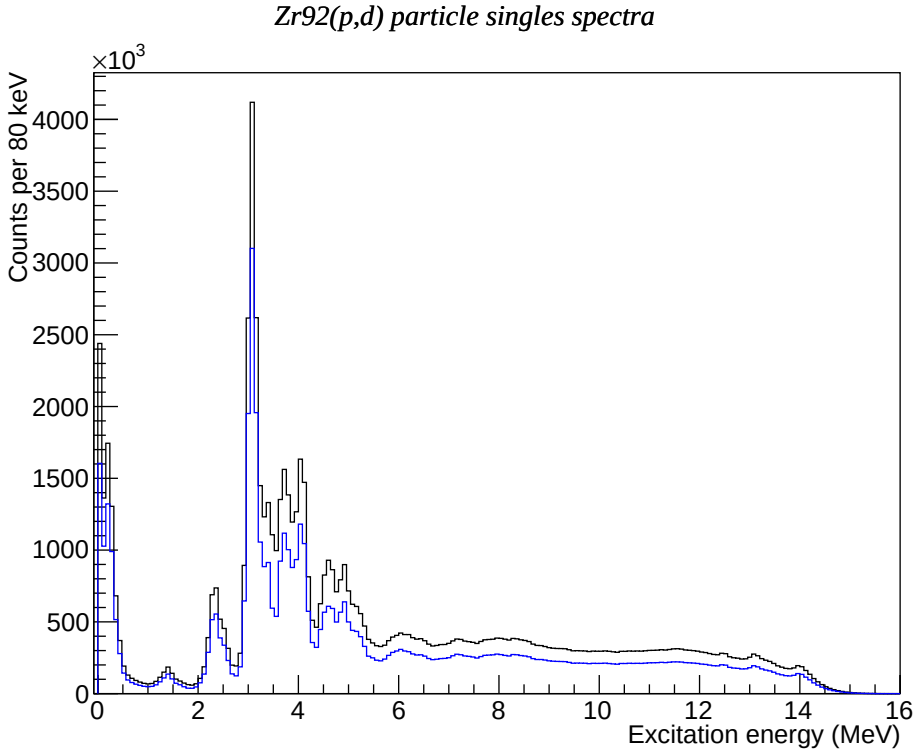

FIG. 17: ^{92}Zr(p,d) raw and isotope subtracted spectrum.

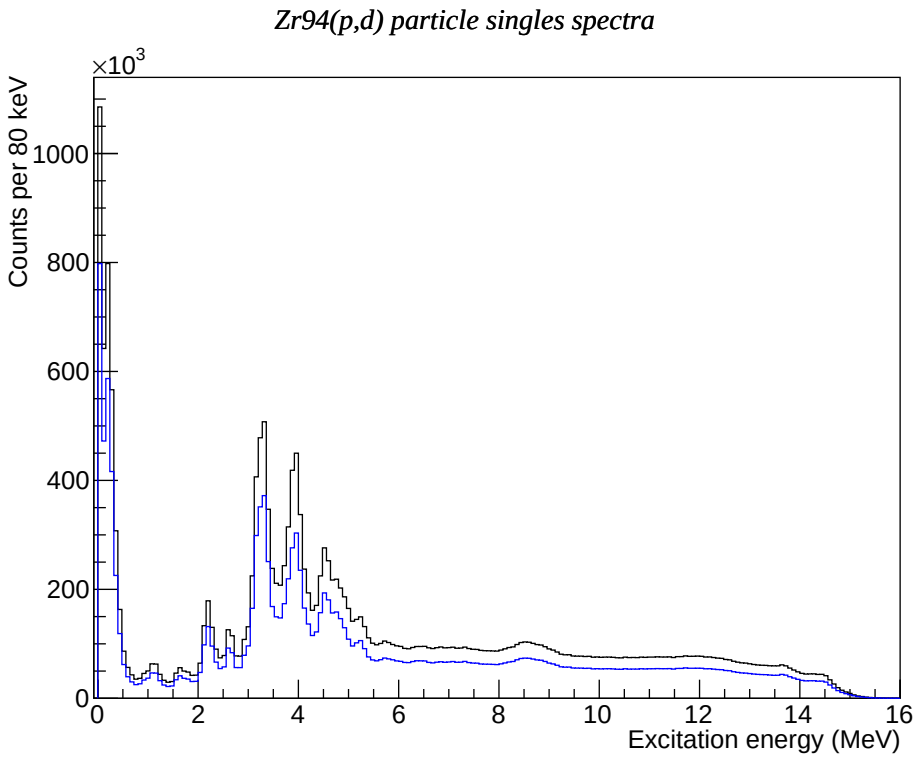

FIG. 18: ^{94}Zr(p,d) raw and isotope subtracted spectrum.

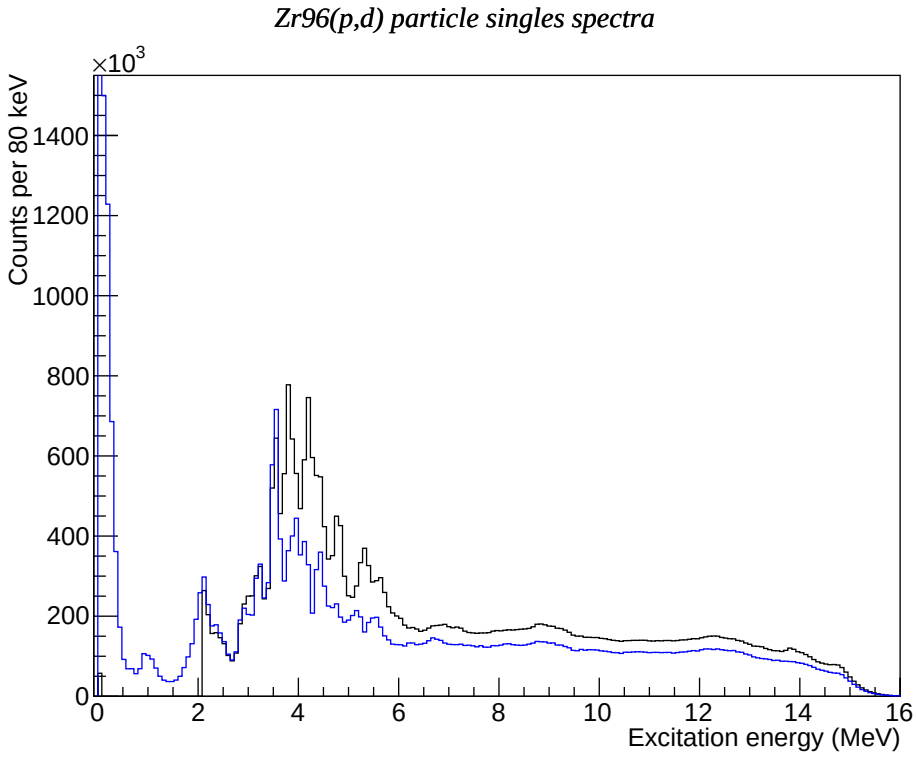

FIG. 19: ^{96}Zr(p,d) raw and isotope subtracted spectrum.

C. Gamma Ray Data

Gamma ray events were recorded sympathetically with any particle induced trigger produced by the silicon telescope array. The gamma ray events were read in on an event by event basis and arranged into leaf by leaf sum and leaf by leaf excitation energy versus gamma ray energy spectra. Neither of these spectra is initially corrected for efficiency or calibrated. All calibrations and efficiency corrections are performed only at the time of the final analysis pass. Preserving the raw results until the final analysis step obviates the need to re-generate these spectra each time a calibration or efficiency changes as the results are refined.

Gamma ray peaks were fit using a Gaussian function plus a background in the region of the γ-ray peak of interest. The Gaussian form of the response arises from the complete charge collection of a photon event in the HPGe detector. There was no observable skew to the gamma ray peaks observed in the array. A skewed-gaussian was not used to fit this data based on the observed shape of the gamma ray peaks measured with the array.

$$y = A_o * e^{-0.5\frac{(E_x - E_\gamma)^2}{\sigma^2}} + B \tag{4}$$

where A_o is the amplitude of the peak, E_x is the energy of the channel, E_γ is the centroid of the gamma ray peak, σ is the standard deviation of the Gaussian and B is the background term. See Fig. 20 for an example of a fit to the data.

The gamma ray data was recorded and the energy and the timing of the information on an event by event basis was recorded. The timing spectrum was obtained by recording the time at which a gamma ray was detected relative to the particle trigger.

The ^{92}Zr(p,d) gamma ray sum spectrum for all gamma rays in coincidence with deuterons of all energies is shown in Fig. 21. The ^{92}Zr(p,d) gamma ray spectra below and above Sn are also shown in Fig.22 and Fig.23. Note that below Sn the nucleus can only decay back down to the ground state or isomeric states. Above Sn the nucleus can emit a neutron and then we can also observe gamma rays from the ^{91}Zr nucleus. A summary of all observed γ-rays can be found in Table VIII and Table IX.

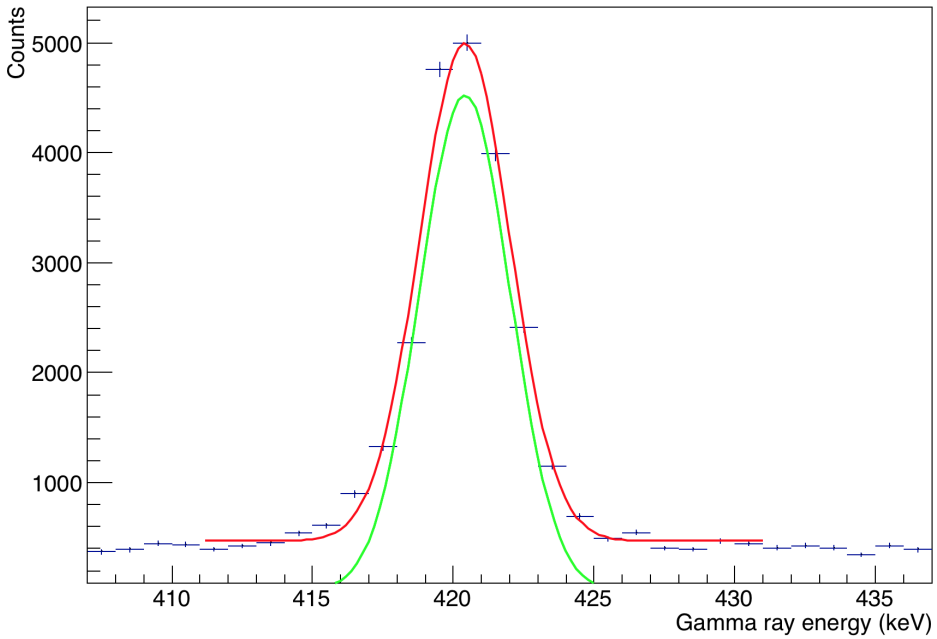

FIG. 20: Example of a gaussian fit to a gamma ray photopeak. 420 keV peak in Zr91 nucleus.

TABLE VIII: Summary of observed transition from ^{92}Zr(p,d)^{91}Zr and ^{92}Zr(p,dn)^{90}Zr reactions.

Isotope	$E_\gamma(keV)$	E_{ini}	E_{fin}	J_i^π	J_f^π	Multipolarity
^{90}Zr	2186.27	2186.27	0	2^+	0^+	E2
^{90}Zr	420.28	2739.3	2319.0	$(4)^-$	5^-	M1
^{90}Zr	561.604	2747.88	2186.274	3^-	2^+	E1
^{90}Zr	890.64	3076.93	2186.274	4^+	2^+	E2
^{90}Zr	1129.224	3448.23	2319.0	6^+	5^-	E1
^{90}Zr	141.178	3589.42	3448.232	8^+	6^+	E2
^{91}Zr	1204.77	1204.77	0	$1/2^+$	$5/2^+$	E2
^{91}Zr	1466.3	1466.3	0	$5/2^+$	$5/2^+$	M1
^{91}Zr	2042.35	2042.35	0	$3/2^+$	$5/2^+$	M1
^{91}Zr	2131.49	2131.49	0	$(9/2)^+$	$5/2^+$	E2
^{91}Zr	2170.15	2170.15	0	$(11/2)^-$	$5/2^+$	E3
^{91}Zr	1882.18	1882.18	0	$7/2^+$	$5/2^+$	M1
^{91}Zr	2200.50	2200.50	0	$7/2^+$	$5/2^+$	M1
^{91}Zr	89.55	2259.92	2170.15	$(13/2)^-$	$(11/2)^-$	M1
^{91}Zr	1151.6	2356.40	1204.77	$(1/2)^-$	$(1/2)^+$	E1
^{91}Zr	2366.56	2366.56	0	unk.$^{unk.}$	$5/2^+$	unk.
^{91}Zr	2577.90	2577.90	0	$(3/2)^-$	$5/2^+$	E1
^{91}Zr	2640.20	2640.20	0	$(3/2)^-$	$5/2^+$	E1

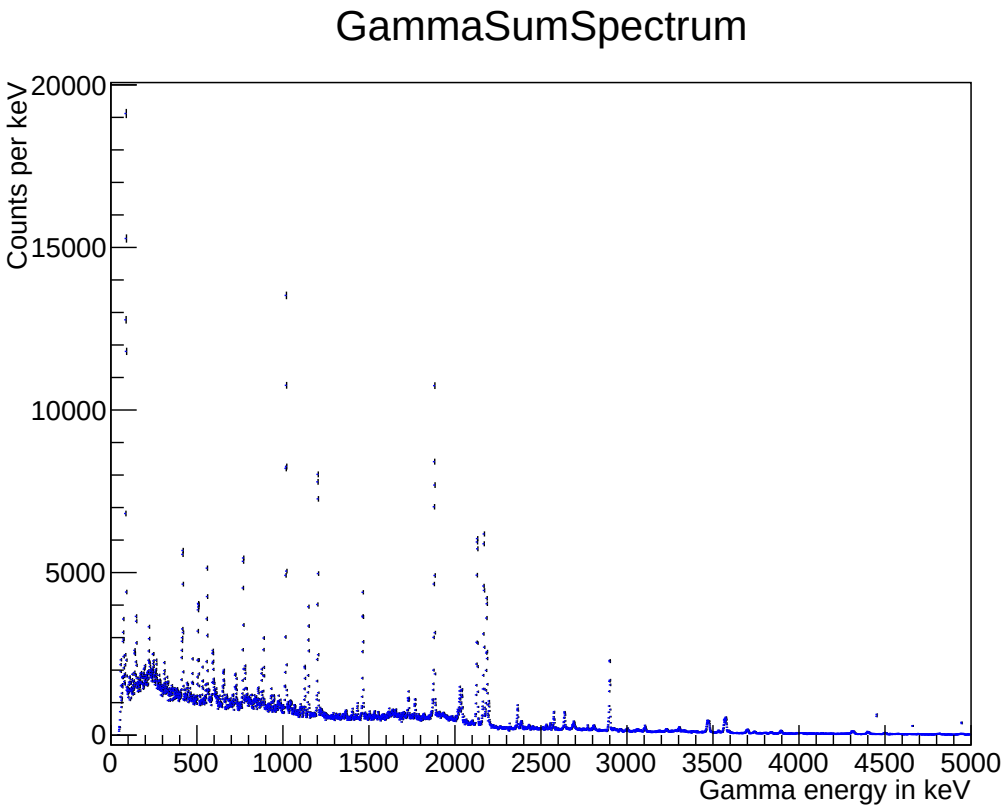

FIG. 21: ^{92}Zr(p,d) gamma ray sum spectrum.

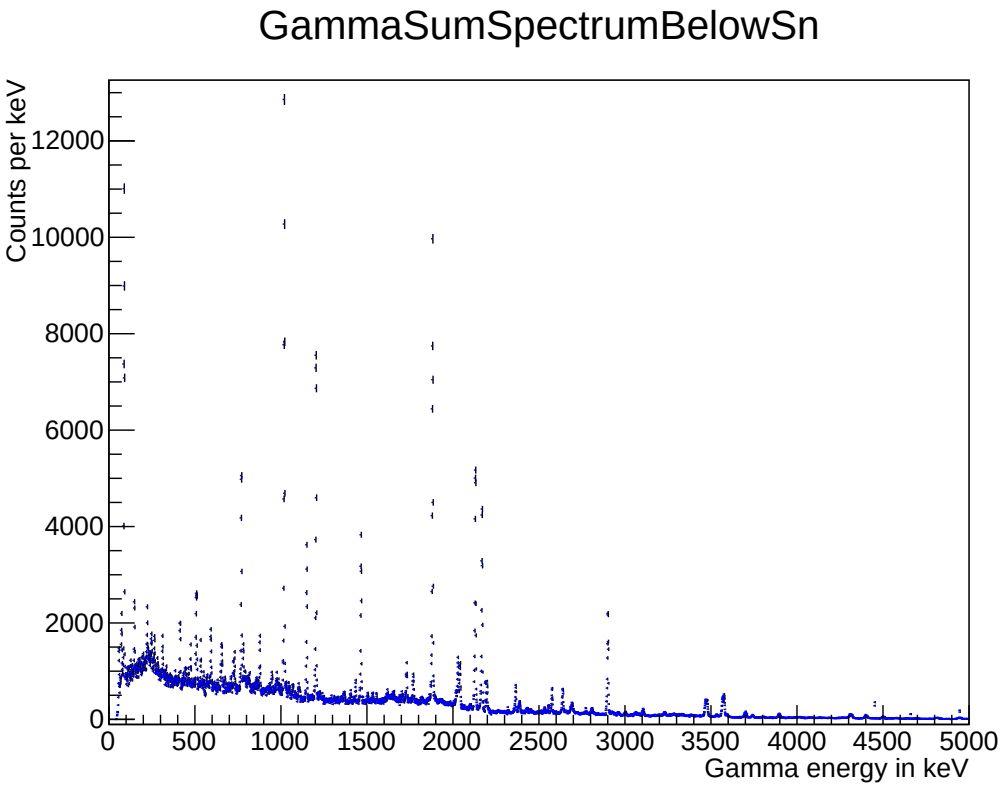

FIG. 22: ^{92}Zr(p,d) gamma ray sum spectrum below Sn.

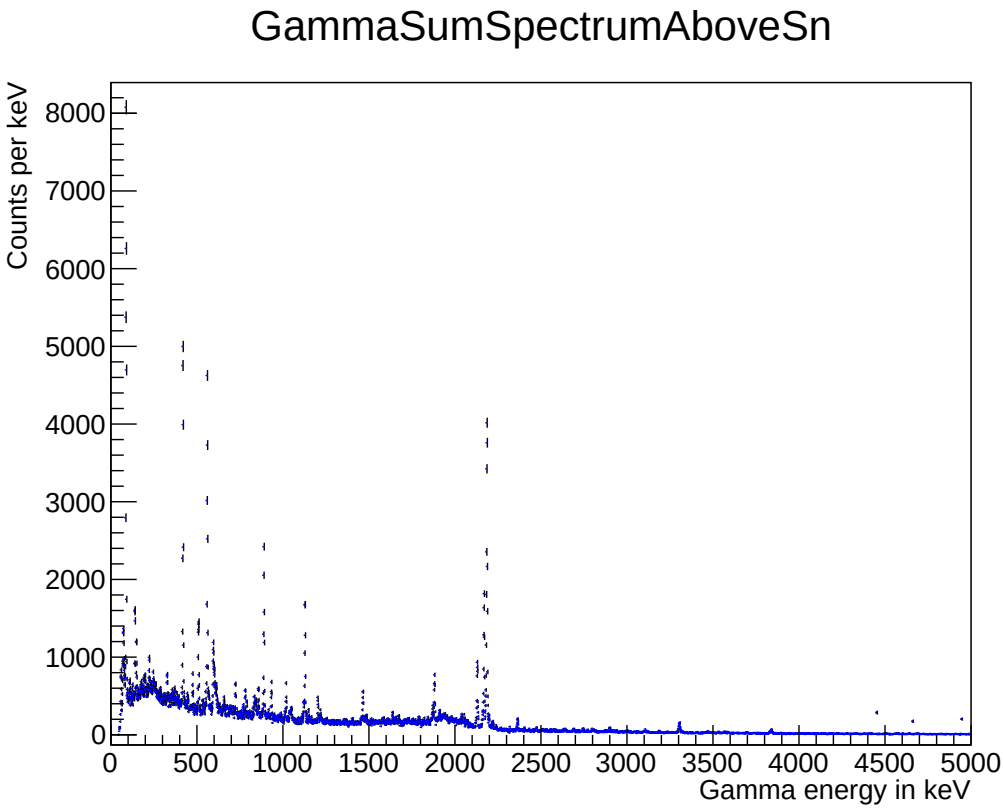

FIG. 23: ^{92}Zr(p,d) gamma ray sum spectrum above Sn.

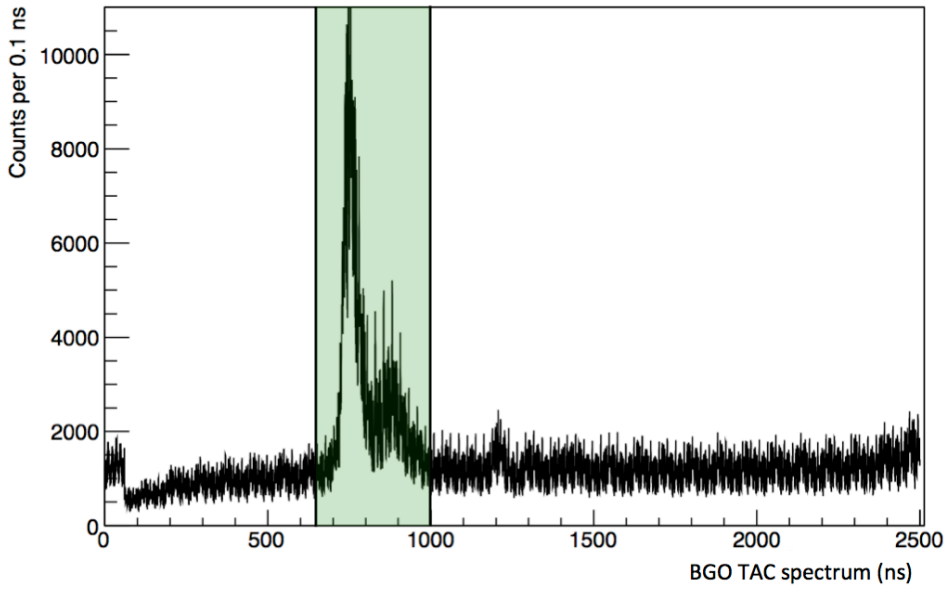

FIG. 24: BGO Compton shield TAC spectrum. The shaded region is the prompt region indicating that there are prompt gamma rays in coincidence with the trigger. In this TAC spectrum these events represent gamma rays that have escaped the HPGe volume of the detector and strike the BGO Compton shield.

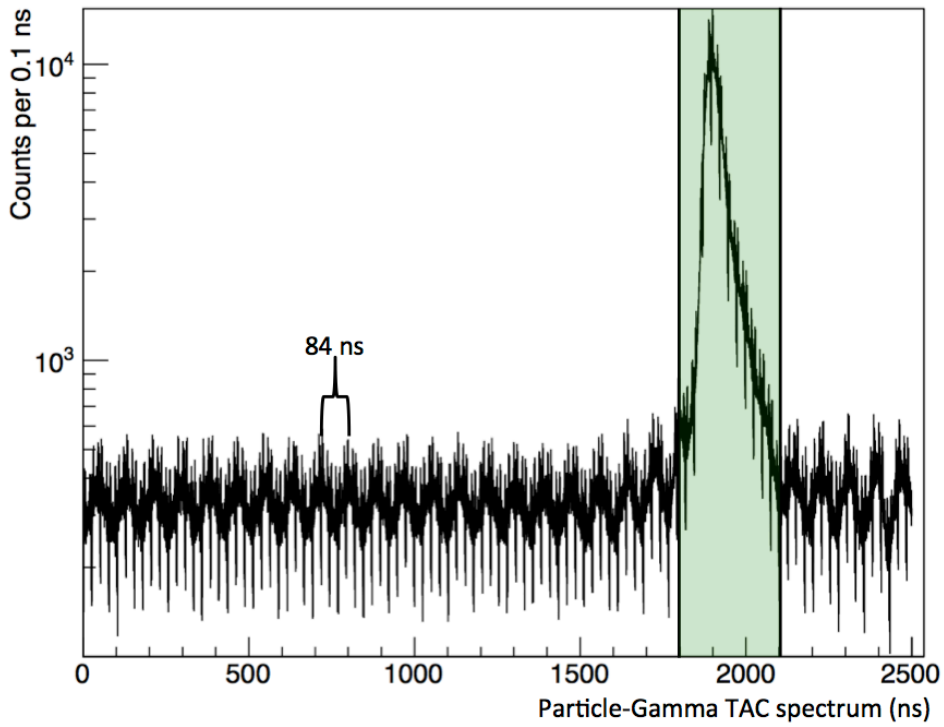

FIG. 25: Particle gamma coincidence TAC spectrum. The shaded region is the prompt region indicating that the gamma rays are in prompt coincidence with the particle events. The radio frequency structure of the K150 Cyclotron can be seen in the random gamma ray background. Note the oscillation in the random background with a period of 84 ns corresponding to a 11.9 MHz cyclotron frequency. The prompt region is approximately 250 ns wide.

TABLE IX: Summary of observed transition from ^{89}Y(p,d)^{88}Y and ^{89}Y(p,dn)^{87}Y reactions.

Isotope	$E_\gamma(keV)$	E_{ini}	E_{fin}	J_i^π	J_f^π	Multipolarity
^{88}Y	231.929	231.929	0	$(5)^-$	4^-	(M1)
^{88}Y	313.88	706.72	392.86	$(2)^-$	1^+	(E1)
^{88}Y	373.57	766.4	392.86	$(0)^+$	1^+	(M1)
^{88}Y	128.100	843.180	715.160	$(5)^+$	$(6)^+$	(M1)
^{88}Y	141.59	984.83	843.18	$(4)^+$	$(5)^+$	(E1)
^{88}Y	984.83	984.83	0	$(4)^+$	4^-	(E1)
^{88}Y	1088.21	1088.21	0	unk.$^{(-)}$	4^-	(M1,E2,M3)
^{88}Y	897.20	1129.13	231.929	$(3,4,5)^-$	$(5)^-$	(M1,E2,M3)
^{88}Y	828.300	1220.830	392.860	$(0,1)^+$	1^+	(M1)
^{88}Y	1267.0	1267.0	0	unk.$^{unk.}$	4^-	(X)
^{88}Y	509.0	1275.3	766.4	$(1,2)^+$	$(0)^+$	(M1+E2)
^{88}Y	299.08	1283.95	984.83	$(3,4,5)^+$	$(4)^+$	(M1)
^{88}Y	350	1570.8	1221.26	unk.$^{unk.}$	$(0,1)^+$	(X)
^{88}Y	1177.3	1570.37	392.86	unk.$^{unk.}$	1^+	(X)
^{88}Y	717.90	1702.73	984.83	$(3,4)^+$	$(4)^+$	(M1)
^{88}Y	1760.0	1760.0	0	$(3,4,5)^-$	4^-	(X)
^{88}Y	1962.0	1962.0	0	(X)	(X)	(X)
^{88}Y	483.50	715.16	231.929	$(6)^+$	$(5)^-$	(E1)
^{88}Y	611.05	843.18	231.929	$(5)^+$	$(5)^-$	(X)
^{88}Y	843.18	843.18	0	$(5)^+$	4^-	(E1)
^{88}Y	1221.26	828.40	392.86	$(0,1)^+$	1^+	(M1)
^{88}Y	882	1275.3	392.86	$(1,2)^+$	1^+	(M1)
^{88}Y	1283.95	1283.95	0	$(3,4,5)^+$	4^-	(E1,X,E1)
^{88}Y	1088.20	1320.14	231.929	unk.$^{unk.}$	$^+$	(x)
^{88}Y	802.68	1477.21	674.55	$(9)^+$	$(8)^+$	(M1+E2)
^{88}Y	1595.9	1595.9	0	$(2,3,4)^-$	4^-	(M2,M1,X)
^{87}Y	793.73	793.73	0	$5/2^-$	$1/2^-$	E2
^{87}Y	982.89	982.89	0	$3/2^-$	$1/2^-$	M1
^{87}Y	1024.0	1404.93	380.82	$(7/2,9/2,13/2)^+$	$9/2^+$	(X)
^{87}Y	771.9	1152.71	380.82	$5/2^+$	$9/2^+$	M2
^{87}Y	1182.1	1182.1	0	$(3/2)^-$	$1/2^-$	(M1+E2)
^{87}Y	1203.01	1203.01	0	$(5/2)^-$	$1/2^-$	(E2)
^{87}Y	1210.0	1590.90	380.82	$11/2^+$	$9/2^+$	M1+E2

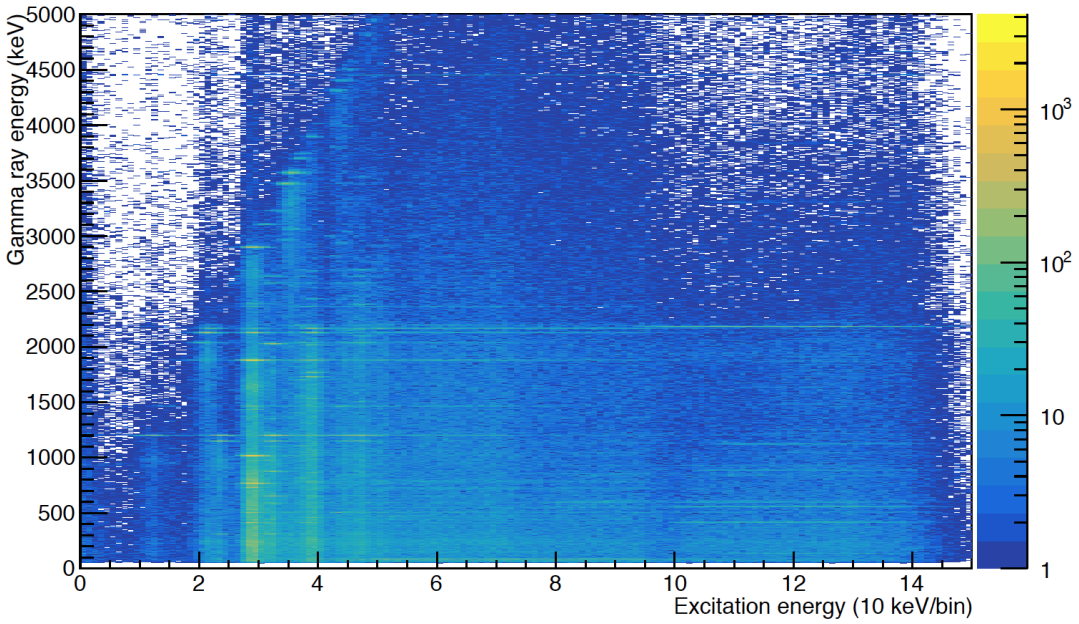

FIG. 26: ^{92}Zr particle gamma ray coincidence spectrum. The gamma ray energy is plotted versus the deuteron particle energy. At the energy corresponding to the ground state (GS) there are no prompt gamma rays in coincidence with the particles. As the energy of the deuteron decreases the excitation energy deposited into the nucleus increases. As the excitation energy increases, new states can be populated in the nucleus and correspondingly new gamma ray transitions are observed. Between the ground state and Sn region (7.19 MeV) only gamma rays from ^{91}Zr are observed. Above Sn ^{90}Zr and ^{91}Zr gamma rays can be observed.

D. Particle-Gamma Coincidence Data

The silicon telescope and HPGe clover array work together to produce particle-gamma coincidence data. The trigger for the data acquisition is a valid δE-E coincidence event. Any gamma ray event that also occurs during the prompt ADC gate (6 μs) is also recorded. Both types of events have a more precise TDC timing associated with them as well. The prompt particle-gamma coincidence data for ^{92}Zr(p,dγ)^{9x}Zr is shown in Figure26. As expected there are no gamma rays in coincidence with the ground state of either nucleus beyond random background events. The particle-gamma coincidence plots enable a visualization of the relationship between excitation energy in the nucleus and nuclear states. As the particle energy, the deuteron in the case of a (p,d) reaction, decreases the excitation energy of the nucleus increases. Notice in both figures gamma rays "turn on" as you excite the nucleus from the ground state up to the neutron separation energy (Sn). At Sn quite a few of the gamma rays decrease in intensity and eventually go to zero intensity. This is due to the evaporation of the neutron in the respective nucleus around Sn. Above Sn as the new nucleus (A-n) is excited, new states in this nucleus begin to show up with their corresponding gamma rays in coincidence with the outgoing particles. This further helps identify which nucleus and states that are created above Sn as a function of excitation energy. All of this information is used to look for gamma ray interferences in the data, study the nuclear structure and help identify strong gamma ray candidates that can be used to obtain gamma ray energy dependent probabilities which are discussed in the next section.

E. Gamma Ray Probability

The gamma ray probabilities were determined from the particle singles and gamma coincident data determined above. For each 80 keV excitation energy bin the net area under a given gamma ray photo peak was corrected for the gamma ray array efficiency and divided by the net number of deuterons in the spectrum. The formula used to generate the energy dependent gamma ray probability is given by

$$P_{\gamma i}(E) = \frac{N_{p\gamma i}(E)}{\epsilon_i N_p(E)}, \tag{5}$$

where $P_{\gamma i}(E)$ is the i^{th} gamma ray probability for a 80 keV wide energy bin centered at an energy E. ϵ_i is the

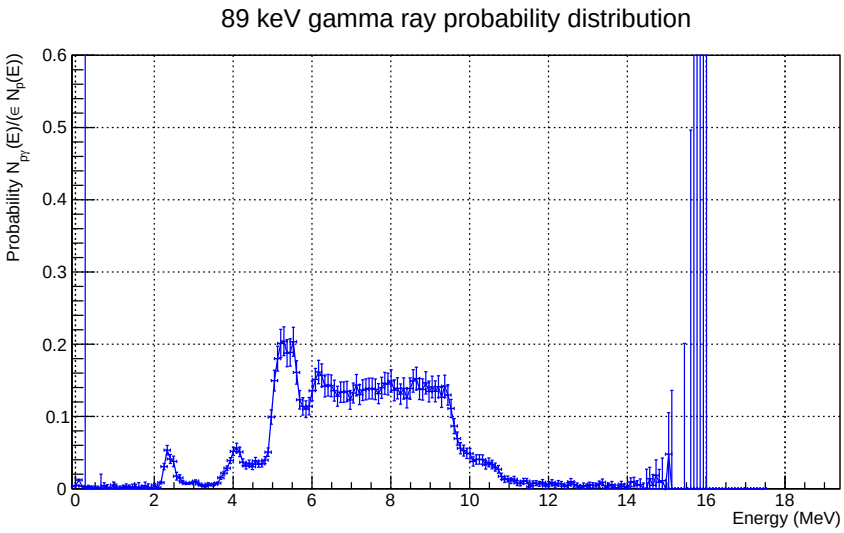

FIG. 27: Gamma ray probability distribution of the 89 keV transition in ^{91}Zr.

gamma ray efficiency for the i^{th} gamma ray and only depends on the energy of the gamma ray being studied and not the particle energy. $N_{p\gamma i}(E)$ is the net number of particle gamma ray coincidence events for the 80 keV energy bin. $N_p(E)$ is the net number of particles for the 80 keV energy bin. The final result of this analysis is a plot of the energy dependent gamma ray probability of a given nuclear transition. An example of this is shown in Fig. 27. As the excitation energy changes the transition is either directly or indirectly populated by the reaction or cascade of transitions from higher excitation energies. This feeding depends on the states being populated and variation in the resulting gamma ray transition probability can be observed. All possible gamma ray probabilities as a function of energy are used to fit the data to a nuclear reaction model which can then be used to determine the cross section for the desired reaction. All uncertainties associated with the statistics, γ-ray efficiency, uncertainty from peak fitting and particle singles subtractions to get net particle singles are all folded into the resulting uncertainties recorded in the tables in the appendix and in the figures in the appendices.

VI. CONCLUSION

We have measured particle-gamma and particle singles data for the ^{92}Zr(p,d) reaction over an energy range of 0 to 14 MeV. The 1σ γ-ray resolution is 1.5 keV and the particle energy resolution is 80 keV. Using this data we have determined multiple energy dependent γ-ray probability distributions. Similarly, the ^{87}Y(n,γ) cross section was determined from the data collected during experiment from the ^{89}Y(p,d) reaction. All of the γ-ray probabilities are summarized in the appendix. The results are provided graphically and in tables for future reference. These distributions were then used to infer the ^{90}Zr(n,γ) cross section in the companion report 'Constraining neutron capture cross sections for unstable nuclei with surrogate reaction data and theory' by J.E. Escher, et al to be published in Physical Review Letters. We have refined and improved several technical issues (particle energy calibrations, improved data compression and read back) and begun the construction of an improved γ-ray array to use in future experiments. The Hyperion γ-ray array will greatly increase our statistics and our ability to measure nuclear structure data in future experiments.

VII. ACKNOWLEDGEMENTS

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VIII. BILIBLIOGRAPHY

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Appendix A: ^{92}Zr(p,d)^{9x}Zr Summary of gamma probability figures and tables of data

In the appendix that follows we list all the figures and tables of data of the gamma ray probability data used to determine the cross section for ^{90}Zr(n,γ). In the tables below; E_{exc} is the excitation of the nucleus, E_{unc} is the energy uncertainty, P_{γ} is the gamma ray probability, $P_{\gamma unc}$ is the gamma ray probability uncertainty and E_{cn} is the equivalent neutron energy of the nucleus. Note that 80 keV is the 1σ uncertainty and energy binning used for all the results presented here.

1. ^{91}Zr γ-ray 89.550 keV

^{91}Zr nucleus
γ-ray observed 89.550 keV
γ-ray originates in initial state at 2259.920 keV and goes to final state at 2170.150 keV
Initial state is (13/2)- and final state is (11/2)- transition is type M1
Internal conversion coefficent α is 1.697

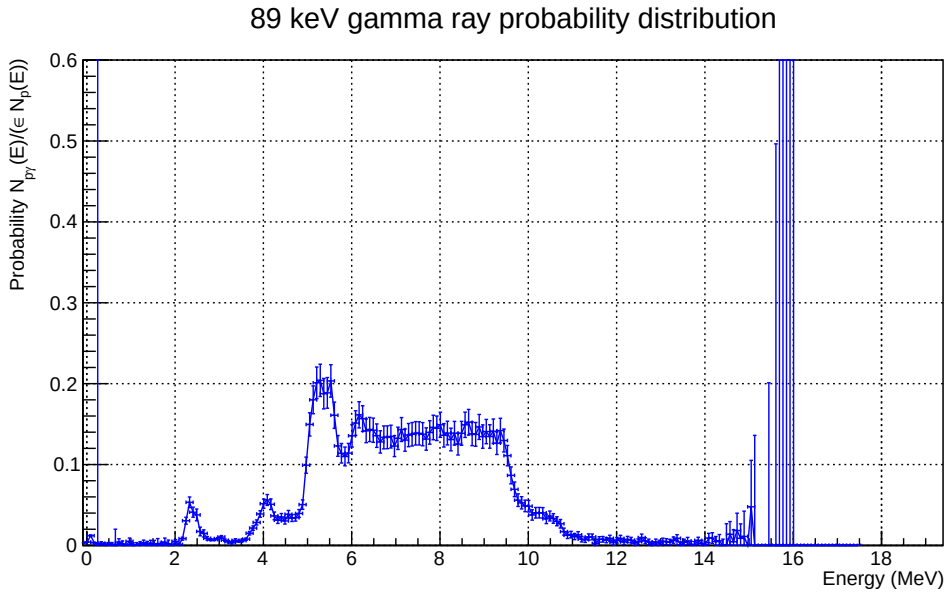

FIG. 28: Gamma ray probability distribution of the 89.550 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE X: ^{92}Zr(p,d)^{91}Zr probability versus energy for 89.550 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.003	0.000	-7.266
0.008	0.080	0.004	0.000	-7.186
0.088	0.080	0.012	0.001	-7.106
0.168	0.080	0.004	0.000	-7.026
0.248	0.080	0.002	21081.193	-6.946
0.328	0.080	0.003	0.002	-6.866
0.408	0.080	0.001	0.002	-6.786
0.488	0.080	0.001	0.002	-6.706
0.568	0.080	0.002	0.002	-6.626
0.648	0.080	0.000	0.020	-6.546
0.728	0.080	0.004	0.004	-6.466
0.808	0.080	0.002	0.003	-6.386
0.888	0.080	0.000	0.000	-6.306
0.968	0.080	0.005	0.004	-6.226
1.048	0.080	0.000	0.003	-6.146
1.128	0.080	0.001	0.003	-6.066
1.208	0.080	0.002	0.003	-5.986
1.288	0.080	0.003	0.003	-5.906
1.368	0.080	0.001	0.004	-5.826
1.448	0.080	0.003	0.003	-5.746
1.528	0.080	0.000	0.006	-5.666

Continued on next page

TABLE X – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.002	0.006	-5.586
1.688	0.080	0.001	0.003	-5.506
1.768	0.080	0.004	0.005	-5.426
1.848	0.080	0.002	0.005	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.005	0.002	-5.186
2.088	0.080	0.001	0.001	-5.106
2.168	0.080	0.008	0.002	-5.026
2.248	0.080	0.031	0.004	-4.946
2.328	0.080	0.053	0.007	-4.866
2.408	0.080	0.041	0.006	-4.786
2.488	0.080	0.038	0.007	-4.706
2.568	0.080	0.017	0.005	-4.626
2.648	0.080	0.015	0.004	-4.546
2.728	0.080	0.009	0.002	-4.466
2.808	0.080	0.007	0.001	-4.386
2.888	0.080	0.007	0.001	-4.306
2.968	0.080	0.009	0.001	-4.226
3.048	0.080	0.010	0.002	-4.146
3.128	0.080	0.007	0.002	-4.066
3.208	0.080	0.004	0.001	-3.986
3.288	0.080	0.003	0.002	-3.906
3.368	0.080	0.006	0.002	-3.826
3.448	0.080	0.005	0.001	-3.746
3.528	0.080	0.006	0.001	-3.666
3.608	0.080	0.008	0.001	-3.586
3.688	0.080	0.015	0.002	-3.506
3.768	0.080	0.022	0.003	-3.426
3.848	0.080	0.028	0.003	-3.346
3.928	0.080	0.039	0.004	-3.266
4.008	0.080	0.052	0.006	-3.186
4.088	0.080	0.056	0.007	-3.106
4.168	0.080	0.051	0.007	-3.026
4.248	0.080	0.036	0.005	-2.946
4.328	0.080	0.031	0.004	-2.866
4.408	0.080	0.035	0.004	-2.786
4.488	0.080	0.030	0.004	-2.706
4.568	0.080	0.038	0.005	-2.626
4.648	0.080	0.034	0.004	-2.546
4.728	0.080	0.034	0.004	-2.466
4.808	0.080	0.040	0.005	-2.386
4.888	0.080	0.051	0.006	-2.306
4.968	0.080	0.099	0.010	-2.226
5.048	0.080	0.150	0.014	-2.146
5.128	0.080	0.180	0.017	-2.066
5.208	0.080	0.201	0.020	-1.986
5.288	0.080	0.204	0.020	-1.906
5.368	0.080	0.188	0.019	-1.826
5.448	0.080	0.189	0.019	-1.746
5.528	0.080	0.203	0.020	-1.666
5.608	0.080	0.161	0.016	-1.586
5.688	0.080	0.123	0.013	-1.506
5.768	0.080	0.114	0.012	-1.426
5.848	0.080	0.110	0.012	-1.346
5.928	0.080	0.114	0.012	-1.266
6.008	0.080	0.135	0.014	-1.186
6.088	0.080	0.151	0.015	-1.106
6.168	0.080	0.162	0.016	-1.026
6.248	0.080	0.157	0.016	-0.946
6.328	0.080	0.142	0.015	-0.866
6.408	0.080	0.143	0.015	-0.786

Continued on next page

TABLE X – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.142	0.015	-0.706
6.568	0.080	0.136	0.014	-0.626
6.648	0.080	0.128	0.014	-0.546
6.728	0.080	0.134	0.014	-0.466
6.808	0.080	0.134	0.014	-0.386
6.888	0.080	0.134	0.014	-0.306
6.968	0.080	0.123	0.013	-0.226
7.048	0.080	0.132	0.014	-0.146
7.128	0.080	0.143	0.015	-0.066
7.208	0.080	0.130	0.014	0.014
7.288	0.080	0.136	0.014	0.094
7.368	0.080	0.137	0.015	0.174
7.448	0.080	0.139	0.014	0.254
7.528	0.080	0.139	0.014	0.334
7.608	0.080	0.138	0.014	0.414
7.688	0.080	0.132	0.014	0.494
7.768	0.080	0.140	0.015	0.574
7.848	0.080	0.146	0.015	0.654
7.928	0.080	0.145	0.015	0.734
8.008	0.080	0.149	0.016	0.814
8.088	0.080	0.136	0.014	0.894
8.168	0.080	0.139	0.015	0.974
8.248	0.080	0.131	0.014	1.054
8.328	0.080	0.139	0.015	1.134
8.408	0.080	0.125	0.014	1.214
8.488	0.080	0.139	0.015	1.294
8.568	0.080	0.149	0.016	1.374
8.648	0.080	0.152	0.016	1.454
8.728	0.080	0.138	0.015	1.534
8.808	0.080	0.137	0.015	1.614
8.888	0.080	0.147	0.015	1.694
8.968	0.080	0.135	0.014	1.774
9.048	0.080	0.141	0.015	1.854
9.128	0.080	0.135	0.014	1.934
9.208	0.080	0.141	0.015	2.014
9.288	0.080	0.126	0.014	2.094
9.368	0.080	0.142	0.015	2.174
9.448	0.080	0.130	0.014	2.254
9.528	0.080	0.111	0.013	2.334
9.608	0.080	0.087	0.010	2.414
9.688	0.080	0.069	0.009	2.494
9.768	0.080	0.056	0.008	2.574
9.848	0.080	0.053	0.008	2.654
9.928	0.080	0.049	0.007	2.734
10.008	0.080	0.049	0.007	2.814
10.088	0.080	0.038	0.006	2.894
10.168	0.080	0.040	0.007	2.974
10.248	0.080	0.041	0.006	3.054
10.328	0.080	0.040	0.006	3.134
10.408	0.080	0.033	0.006	3.214
10.488	0.080	0.036	0.006	3.294
10.568	0.080	0.033	0.006	3.374
10.648	0.080	0.030	0.006	3.454
10.728	0.080	0.027	0.005	3.534
10.808	0.080	0.017	0.004	3.614
10.888	0.080	0.013	0.004	3.694
10.968	0.080	0.014	0.004	3.774
11.048	0.080	0.011	0.004	3.854
11.128	0.080	0.013	0.004	3.934
11.208	0.080	0.008	0.003	4.014
11.288	0.080	0.007	0.003	4.094

Continued on next page

TABLE X – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.010	0.004	4.174
11.448	0.080	0.010	0.004	4.254
11.528	0.080	0.002	0.003	4.334
11.608	0.080	0.007	0.003	4.414
11.688	0.080	0.008	0.003	4.494
11.768	0.080	0.007	0.003	4.574
11.848	0.080	0.009	0.004	4.654
11.928	0.080	0.004	0.003	4.734
12.008	0.080	0.006	0.003	4.814
12.088	0.080	0.009	0.004	4.894
12.168	0.080	0.004	0.003	4.974
12.248	0.080	0.007	0.004	5.054
12.328	0.080	0.007	0.003	5.134
12.408	0.080	0.003	0.003	5.214
12.488	0.080	0.004	0.004	5.294
12.568	0.080	0.010	0.004	5.374
12.648	0.080	0.006	0.004	5.454
12.728	0.080	0.004	0.004	5.534
12.808	0.080	0.002	0.003	5.614
12.888	0.080	0.004	0.004	5.694
12.968	0.080	0.003	0.003	5.774
13.048	0.080	0.005	0.004	5.854
13.128	0.080	0.005	0.004	5.934
13.208	0.080	0.004	0.003	6.014
13.288	0.080	0.006	0.004	6.094
13.368	0.080	0.009	0.004	6.174
13.448	0.080	0.001	0.003	6.254
13.528	0.080	0.004	0.004	6.334
13.608	0.080	0.006	0.004	6.414
13.688	0.080	0.001	0.004	6.494
13.768	0.080	0.001	0.004	6.574
13.848	0.080	0.006	0.004	6.654
13.928	0.080	0.003	0.004	6.734
14.008	0.080	0.001	0.003	6.814
14.088	0.080	0.009	0.006	6.894
14.168	0.080	0.009	0.007	6.974
14.248	0.080	0.005	0.006	7.054
14.328	0.080	0.006	0.008	7.134
14.408	0.080	0.000	0.008	7.214
14.488	0.080	0.001	0.026	7.294
14.568	0.080	0.014	0.016	7.374
14.648	0.080	0.005	0.015	7.454
14.728	0.080	0.018	0.021	7.534
14.808	0.080	0.009	0.018	7.614
14.888	0.080	0.011	0.031	7.694
14.968	0.080	0.000	0.000	7.774
15.048	0.080	0.048	0.057	7.854
15.128	0.080	0.000	0.136	7.934
15.208	0.080	0.000	0.000	8.014
15.288	0.080	0.000	0.000	8.094
15.368	0.080	0.000	0.000	8.174
15.448	0.080	0.000	0.201	8.254
15.528	0.080	0.000	0.000	8.334
15.608	0.080	0.000	0.496	8.414
15.688	0.080	0.000	0.712	8.494
15.768	0.080	0.000	1.436	8.574
15.848	0.080	0.000	3.656	8.654
15.928	0.080	0.000	3.656	8.734
16.008	0.080	0.000	20.107	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE X – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

2. ^{91}Zr γ-ray 224.800 keV

^{91}Zr nucleus
γ-ray observed 224.800 keV
γ-ray originates in initial state at 2394.900 keV and goes to final state at 2170.150 keV
Initial state is (9/2)- and final state is (11/2)- transition is type (M1)
Internal conversion coefficent α is 1.000

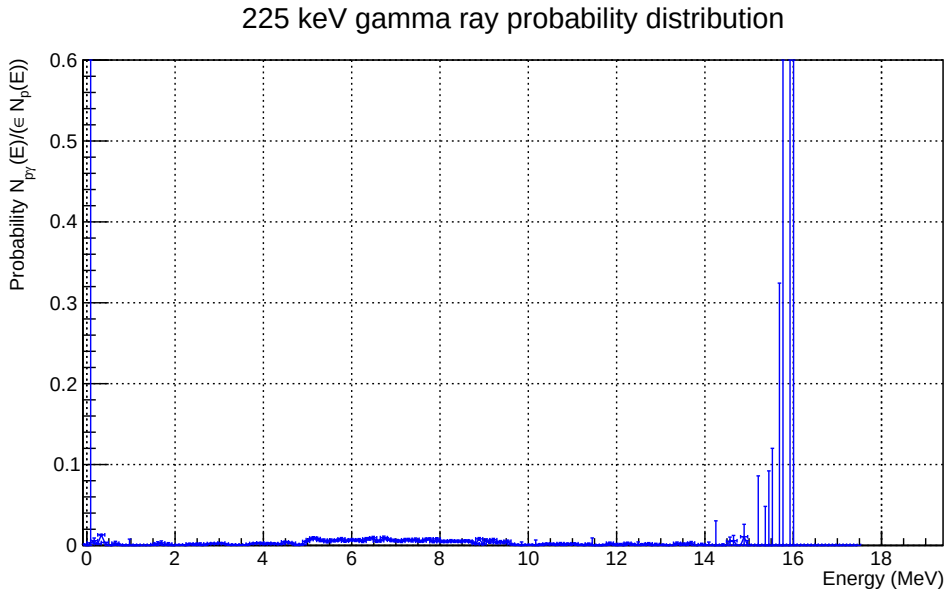

FIG. 29: Gamma ray probability distribution of the 224.800 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XI: ^{92}Zr(p,d)^{91}Zr probability versus energy for 224.800 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.001	0.000	-7.266
0.008	0.080	0.000	0.000	-7.186
0.088	0.080	0.003	1220.267	-7.106
0.168	0.080	0.006	0.003	-7.026
0.248	0.080	0.002	0.001	-6.946
0.328	0.080	0.013	0.001	-6.866
0.408	0.080	0.004	0.000	-6.786
0.488	0.080	0.000	0.000	-6.706
0.568	0.080	0.000	0.000	-6.626
0.648	0.080	0.003	0.002	-6.546
0.728	0.080	0.000	0.002	-6.466
0.808	0.080	0.000	0.001	-6.386
0.888	0.080	0.000	0.001	-6.306
0.968	0.080	0.000	0.008	-6.226
1.048	0.080	0.000	0.001	-6.146
1.128	0.080	0.000	0.000	-6.066
1.208	0.080	0.000	0.000	-5.986
1.288	0.080	0.000	0.000	-5.906
1.368	0.080	0.000	0.000	-5.826
1.448	0.080	0.000	0.000	-5.746
1.528	0.080	0.001	0.002	-5.666

Continued on next page

TABLE XI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.002	0.002	-5.586
1.688	0.080	0.003	0.002	-5.506
1.768	0.080	0.000	0.000	-5.426
1.848	0.080	0.002	0.002	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.000	0.000	-5.186
2.088	0.080	0.001	0.001	-5.106
2.168	0.080	0.000	0.000	-5.026
2.248	0.080	0.000	0.001	-4.946
2.328	0.080	0.002	0.001	-4.866
2.408	0.080	0.001	0.001	-4.786
2.488	0.080	0.001	0.002	-4.706
2.568	0.080	0.002	0.002	-4.626
2.648	0.080	0.000	0.000	-4.546
2.728	0.080	0.002	0.001	-4.466
2.808	0.080	0.002	0.000	-4.386
2.888	0.080	0.002	0.000	-4.306
2.968	0.080	0.002	0.000	-4.226
3.048	0.080	0.003	0.001	-4.146
3.128	0.080	0.002	0.001	-4.066
3.208	0.080	0.001	0.001	-3.986
3.288	0.080	0.001	0.001	-3.906
3.368	0.080	0.001	0.001	-3.826
3.448	0.080	0.000	0.000	-3.746
3.528	0.080	0.001	0.000	-3.666
3.608	0.080	0.000	0.000	-3.586
3.688	0.080	0.002	0.001	-3.506
3.768	0.080	0.002	0.001	-3.426
3.848	0.080	0.003	0.001	-3.346
3.928	0.080	0.003	0.001	-3.266
4.008	0.080	0.002	0.001	-3.186
4.088	0.080	0.003	0.001	-3.106
4.168	0.080	0.002	0.001	-3.026
4.248	0.080	0.002	0.001	-2.946
4.328	0.080	0.002	0.001	-2.866
4.408	0.080	0.002	0.001	-2.786
4.488	0.080	0.004	0.001	-2.706
4.568	0.080	0.004	0.001	-2.626
4.648	0.080	0.003	0.001	-2.546
4.728	0.080	0.001	0.001	-2.466
4.808	0.080	0.001	0.001	-2.386
4.888	0.080	0.001	0.001	-2.306
4.968	0.080	0.005	0.001	-2.226
5.048	0.080	0.007	0.001	-2.146
5.128	0.080	0.009	0.002	-2.066
5.208	0.080	0.009	0.002	-1.986
5.288	0.080	0.006	0.002	-1.906
5.368	0.080	0.006	0.002	-1.826
5.448	0.080	0.005	0.001	-1.746
5.528	0.080	0.006	0.002	-1.666
5.608	0.080	0.006	0.001	-1.586
5.688	0.080	0.007	0.001	-1.506
5.768	0.080	0.008	0.002	-1.426
5.848	0.080	0.005	0.001	-1.346
5.928	0.080	0.007	0.001	-1.266
6.008	0.080	0.007	0.001	-1.186
6.088	0.080	0.006	0.001	-1.106
6.168	0.080	0.007	0.002	-1.026
6.248	0.080	0.005	0.001	-0.946
6.328	0.080	0.008	0.002	-0.866
6.408	0.080	0.008	0.002	-0.786

Continued on next page

TABLE XI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.009	0.002	-0.706
6.568	0.080	0.005	0.002	-0.626
6.648	0.080	0.006	0.002	-0.546
6.728	0.080	0.010	0.002	-0.466
6.808	0.080	0.008	0.002	-0.386
6.888	0.080	0.006	0.002	-0.306
6.968	0.080	0.006	0.001	-0.226
7.048	0.080	0.006	0.001	-0.146
7.128	0.080	0.005	0.002	-0.066
7.208	0.080	0.007	0.002	0.014
7.288	0.080	0.007	0.002	0.094
7.368	0.080	0.006	0.001	0.174
7.448	0.080	0.008	0.002	0.254
7.528	0.080	0.005	0.001	0.334
7.608	0.080	0.005	0.001	0.414
7.688	0.080	0.008	0.001	0.494
7.768	0.080	0.008	0.001	0.574
7.848	0.080	0.005	0.001	0.654
7.928	0.080	0.008	0.001	0.734
8.008	0.080	0.005	0.001	0.814
8.088	0.080	0.005	0.001	0.894
8.168	0.080	0.005	0.001	0.974
8.248	0.080	0.006	0.001	1.054
8.328	0.080	0.005	0.001	1.134
8.408	0.080	0.005	0.001	1.214
8.488	0.080	0.005	0.001	1.294
8.568	0.080	0.006	0.001	1.374
8.648	0.080	0.005	0.001	1.454
8.728	0.080	0.004	0.001	1.534
8.808	0.080	0.002	0.001	1.614
8.888	0.080	0.008	0.002	1.694
8.968	0.080	0.002	0.001	1.774
9.048	0.080	0.007	0.001	1.854
9.128	0.080	0.004	0.001	1.934
9.208	0.080	0.007	0.002	2.014
9.288	0.080	0.003	0.001	2.094
9.368	0.080	0.005	0.001	2.174
9.448	0.080	0.003	0.001	2.254
9.528	0.080	0.005	0.001	2.334
9.608	0.080	0.002	0.001	2.414
9.688	0.080	0.001	0.001	2.494
9.768	0.080	0.001	0.001	2.574
9.848	0.080	0.000	0.004	2.654
9.928	0.080	0.000	0.001	2.734
10.008	0.080	0.001	0.001	2.814
10.088	0.080	0.000	0.001	2.894
10.168	0.080	0.000	0.007	2.974
10.248	0.080	0.000	0.002	3.054
10.328	0.080	0.001	0.001	3.134
10.408	0.080	0.002	0.001	3.214
10.488	0.080	0.002	0.001	3.294
10.568	0.080	0.002	0.001	3.374
10.648	0.080	0.001	0.001	3.454
10.728	0.080	0.002	0.001	3.534
10.808	0.080	0.000	0.002	3.614
10.888	0.080	0.002	0.001	3.694
10.968	0.080	0.001	0.001	3.774
11.048	0.080	0.002	0.001	3.854
11.128	0.080	0.000	0.001	3.934
11.208	0.080	0.001	0.001	4.014
11.288	0.080	0.000	0.000	4.094

Continued on next page

TABLE XI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.002	0.001	4.174
11.448	0.080	0.000	0.009	4.254
11.528	0.080	0.000	0.000	4.334
11.608	0.080	0.000	0.001	4.414
11.688	0.080	0.000	0.001	4.494
11.768	0.080	0.000	0.002	4.574
11.848	0.080	0.003	0.001	4.654
11.928	0.080	0.001	0.001	4.734
12.008	0.080	0.000	0.002	4.814
12.088	0.080	0.000	0.002	4.894
12.168	0.080	0.000	0.003	4.974
12.248	0.080	0.003	0.001	5.054
12.328	0.080	0.001	0.001	5.134
12.408	0.080	0.001	0.001	5.214
12.488	0.080	0.000	0.004	5.294
12.568	0.080	0.001	0.002	5.374
12.648	0.080	0.001	0.001	5.454
12.728	0.080	0.002	0.001	5.534
12.808	0.080	0.000	0.001	5.614
12.888	0.080	0.001	0.001	5.694
12.968	0.080	0.000	0.000	5.774
13.048	0.080	0.000	0.001	5.854
13.128	0.080	0.000	0.001	5.934
13.208	0.080	0.000	0.000	6.014
13.288	0.080	0.000	0.000	6.094
13.368	0.080	0.003	0.002	6.174
13.448	0.080	0.001	0.002	6.254
13.528	0.080	0.001	0.002	6.334
13.608	0.080	0.001	0.002	6.414
13.688	0.080	0.003	0.002	6.494
13.768	0.080	0.000	0.000	6.574
13.848	0.080	0.000	0.000	6.654
13.928	0.080	0.001	0.002	6.734
14.008	0.080	0.000	0.001	6.814
14.088	0.080	0.000	0.004	6.894
14.168	0.080	0.000	0.000	6.974
14.248	0.080	0.000	0.030	7.054
14.328	0.080	0.000	0.000	7.134
14.408	0.080	0.000	0.002	7.214
14.488	0.080	0.000	0.000	7.294
14.568	0.080	0.005	0.005	7.374
14.648	0.080	0.006	0.007	7.454
14.728	0.080	0.000	0.000	7.534
14.808	0.080	0.000	0.000	7.614
14.888	0.080	0.011	0.015	7.694
14.968	0.080	0.000	0.006	7.774
15.048	0.080	0.000	0.000	7.854
15.128	0.080	0.000	0.000	7.934
15.208	0.080	0.000	0.086	8.014
15.288	0.080	0.000	0.000	8.094
15.368	0.080	0.000	0.048	8.174
15.448	0.080	0.000	0.092	8.254
15.528	0.080	0.000	0.120	8.334
15.608	0.080	0.000	0.000	8.414
15.688	0.080	0.000	0.324	8.494
15.768	0.080	0.000	0.660	8.574
15.848	0.080	0.000	0.000	8.654
15.928	0.080	0.000	1.680	8.734
16.008	0.080	0.000	9.243	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

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TABLE XI – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

3. ^{91}Zr γ-ray 652.490 keV

^{91}Zr nucleus
γ-ray observed 652.490 keV
γ-ray originates in initial state at 2534.700 keV and goes to final state at 1882.200 keV
Initial state is (3/2)+ and final state is 7/2+ transition is type M9
Internal conversion coefficent α is 1.000

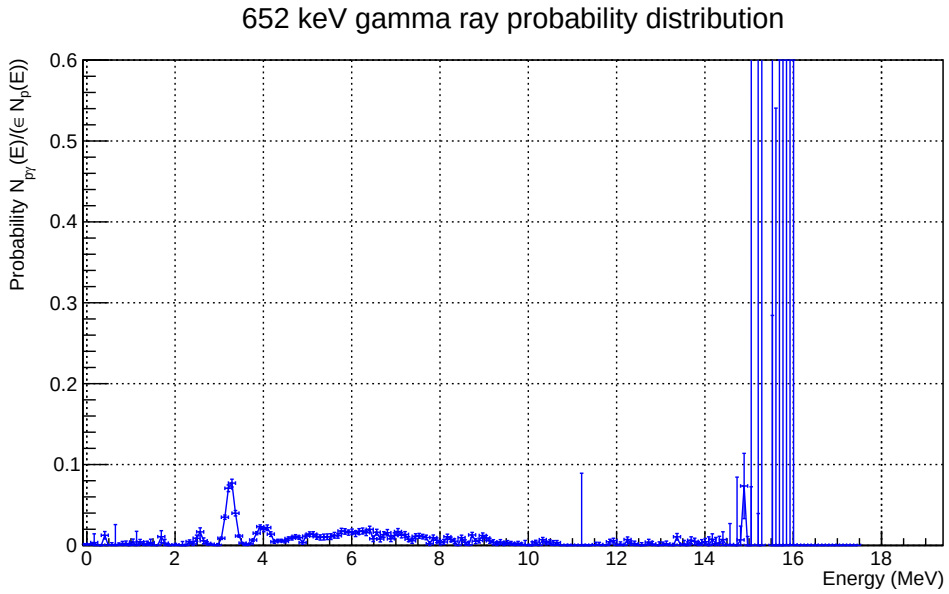

FIG. 30: Gamma ray probability distribution of the 652.490 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 652.490 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.001	0.001	-7.266
0.008	0.080	0.001	0.000	-7.186
0.088	0.080	0.001	0.001	-7.106
0.168	0.080	0.004	0.011	-7.026
0.248	0.080	0.000	0.000	-6.946
0.328	0.080	0.000	0.000	-6.866
0.408	0.080	0.013	0.005	-6.786
0.488	0.080	0.000	0.000	-6.706
0.568	0.080	0.001	0.003	-6.626
0.648	0.080	0.000	0.026	-6.546
0.728	0.080	0.001	0.002	-6.466
0.808	0.080	0.002	0.003	-6.386
0.888	0.080	0.002	0.003	-6.306
0.968	0.080	0.000	0.002	-6.226
1.048	0.080	0.004	0.004	-6.146
1.128	0.080	0.000	0.017	-6.066
1.208	0.080	0.004	0.003	-5.986
1.288	0.080	0.002	0.003	-5.906
1.368	0.080	0.002	0.004	-5.826
1.448	0.080	0.004	0.004	-5.746
1.528	0.080	0.000	0.000	-5.666

Continued on next page

TABLE XII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.000	-5.586
1.688	0.080	0.011	0.007	-5.506
1.768	0.080	0.003	0.005	-5.426
1.848	0.080	0.000	0.002	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.001	0.002	-5.186
2.088	0.080	0.000	0.000	-5.106
2.168	0.080	0.000	0.005	-5.026
2.248	0.080	0.000	0.002	-4.946
2.328	0.080	0.005	0.002	-4.866
2.408	0.080	0.002	0.003	-4.786
2.488	0.080	0.009	0.004	-4.706
2.568	0.080	0.017	0.005	-4.626
2.648	0.080	0.006	0.004	-4.546
2.728	0.080	0.002	0.002	-4.466
2.808	0.080	0.002	0.001	-4.386
2.888	0.080	0.000	0.001	-4.306
2.968	0.080	0.000	0.002	-4.226
3.048	0.080	0.009	0.001	-4.146
3.128	0.080	0.035	0.003	-4.066
3.208	0.080	0.071	0.004	-3.986
3.288	0.080	0.077	0.005	-3.906
3.368	0.080	0.040	0.003	-3.826
3.448	0.080	0.012	0.001	-3.746
3.528	0.080	0.003	0.001	-3.666
3.608	0.080	0.000	0.001	-3.586
3.688	0.080	0.002	0.001	-3.506
3.768	0.080	0.007	0.002	-3.426
3.848	0.080	0.015	0.002	-3.346
3.928	0.080	0.023	0.002	-3.266
4.008	0.080	0.020	0.003	-3.186
4.088	0.080	0.022	0.003	-3.106
4.168	0.080	0.014	0.003	-3.026
4.248	0.080	0.004	0.002	-2.946
4.328	0.080	0.006	0.002	-2.866
4.408	0.080	0.006	0.002	-2.786
4.488	0.080	0.005	0.002	-2.706
4.568	0.080	0.009	0.002	-2.626
4.648	0.080	0.009	0.002	-2.546
4.728	0.080	0.011	0.002	-2.466
4.808	0.080	0.010	0.002	-2.386
4.888	0.080	0.004	0.002	-2.306
4.968	0.080	0.012	0.002	-2.226
5.048	0.080	0.014	0.003	-2.146
5.128	0.080	0.014	0.003	-2.066
5.208	0.080	0.011	0.003	-1.986
5.288	0.080	0.010	0.003	-1.906
5.368	0.080	0.010	0.004	-1.826
5.448	0.080	0.011	0.003	-1.746
5.528	0.080	0.011	0.004	-1.666
5.608	0.080	0.013	0.004	-1.586
5.688	0.080	0.012	0.003	-1.506
5.768	0.080	0.018	0.003	-1.426
5.848	0.080	0.017	0.003	-1.346
5.928	0.080	0.016	0.003	-1.266
6.008	0.080	0.017	0.003	-1.186
6.088	0.080	0.014	0.004	-1.106
6.168	0.080	0.017	0.004	-1.026
6.248	0.080	0.018	0.004	-0.946
6.328	0.080	0.016	0.004	-0.866
6.408	0.080	0.020	0.004	-0.786

Continued on next page

TABLE XII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.008	0.004	-0.706
6.568	0.080	0.016	0.004	-0.626
6.648	0.080	0.008	0.004	-0.546
6.728	0.080	0.013	0.004	-0.466
6.808	0.080	0.016	0.004	-0.386
6.888	0.080	0.008	0.003	-0.306
6.968	0.080	0.012	0.003	-0.226
7.048	0.080	0.017	0.004	-0.146
7.128	0.080	0.013	0.003	-0.066
7.208	0.080	0.014	0.003	0.014
7.288	0.080	0.008	0.003	0.094
7.368	0.080	0.006	0.003	0.174
7.448	0.080	0.011	0.003	0.254
7.528	0.080	0.012	0.003	0.334
7.608	0.080	0.011	0.003	0.414
7.688	0.080	0.010	0.003	0.494
7.768	0.080	0.002	0.003	0.574
7.848	0.080	0.010	0.003	0.654
7.928	0.080	0.006	0.003	0.734
8.008	0.080	0.003	0.003	0.814
8.088	0.080	0.004	0.003	0.894
8.168	0.080	0.011	0.003	0.974
8.248	0.080	0.007	0.003	1.054
8.328	0.080	0.005	0.003	1.134
8.408	0.080	0.000	0.000	1.214
8.488	0.080	0.010	0.003	1.294
8.568	0.080	0.004	0.003	1.374
8.648	0.080	0.000	0.004	1.454
8.728	0.080	0.013	0.003	1.534
8.808	0.080	0.005	0.003	1.614
8.888	0.080	0.006	0.003	1.694
8.968	0.080	0.012	0.003	1.774
9.048	0.080	0.009	0.003	1.854
9.128	0.080	0.006	0.003	1.934
9.208	0.080	0.004	0.003	2.014
9.288	0.080	0.001	0.003	2.094
9.368	0.080	0.004	0.003	2.174
9.448	0.080	0.002	0.003	2.254
9.528	0.080	0.003	0.003	2.334
9.608	0.080	0.003	0.002	2.414
9.688	0.080	0.001	0.002	2.494
9.768	0.080	0.002	0.002	2.574
9.848	0.080	0.001	0.002	2.654
9.928	0.080	0.000	0.006	2.734
10.008	0.080	0.000	0.001	2.814
10.088	0.080	0.000	0.005	2.894
10.168	0.080	0.004	0.002	2.974
10.248	0.080	0.000	0.000	3.054
10.328	0.080	0.007	0.003	3.134
10.408	0.080	0.003	0.002	3.214
10.488	0.080	0.004	0.003	3.294
10.568	0.080	0.000	0.006	3.374
10.648	0.080	0.003	0.003	3.454
10.728	0.080	0.000	0.000	3.534
10.808	0.080	0.000	0.000	3.614
10.888	0.080	0.000	0.001	3.694
10.968	0.080	0.000	0.000	3.774
11.048	0.080	0.000	0.000	3.854
11.128	0.080	0.000	0.000	3.934
11.208	0.080	0.000	0.089	4.014
11.288	0.080	0.000	0.001	4.094

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TABLE XII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.000	0.001	4.174
11.448	0.080	0.000	0.000	4.254
11.528	0.080	0.001	0.003	4.334
11.608	0.080	0.001	0.003	4.414
11.688	0.080	0.000	0.000	4.494
11.768	0.080	0.000	0.000	4.574
11.848	0.080	0.004	0.003	4.654
11.928	0.080	0.006	0.003	4.734
12.008	0.080	0.000	0.000	4.814
12.088	0.080	0.002	0.003	4.894
12.168	0.080	0.000	0.000	4.974
12.248	0.080	0.007	0.003	5.054
12.328	0.080	0.003	0.003	5.134
12.408	0.080	0.002	0.003	5.214
12.488	0.080	0.000	0.000	5.294
12.568	0.080	0.000	0.003	5.374
12.648	0.080	0.000	0.000	5.454
12.728	0.080	0.004	0.003	5.534
12.808	0.080	0.002	0.003	5.614
12.888	0.080	0.000	0.000	5.694
12.968	0.080	0.000	0.004	5.774
13.048	0.080	0.001	0.003	5.854
13.128	0.080	0.002	0.003	5.934
13.208	0.080	0.000	0.000	6.014
13.288	0.080	0.000	0.003	6.094
13.368	0.080	0.011	0.004	6.174
13.448	0.080	0.000	0.000	6.254
13.528	0.080	0.002	0.004	6.334
13.608	0.080	0.000	0.004	6.414
13.688	0.080	0.006	0.004	6.494
13.768	0.080	0.005	0.004	6.574
13.848	0.080	0.002	0.003	6.654
13.928	0.080	0.003	0.004	6.734
14.008	0.080	0.005	0.004	6.814
14.088	0.080	0.000	0.011	6.894
14.168	0.080	0.008	0.007	6.974
14.248	0.080	0.002	0.008	7.054
14.328	0.080	0.003	0.008	7.134
14.408	0.080	0.007	0.010	7.214
14.488	0.080	0.000	0.000	7.294
14.568	0.080	0.001	0.026	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.000	0.084	7.534
14.808	0.080	0.007	0.017	7.614
14.888	0.080	0.073	0.040	7.694
14.968	0.080	0.000	0.011	7.774
15.048	0.080	0.000	0.073	7.854
15.128	0.080	22.465	5972986.000	7.934
15.208	0.080	0.000	0.039	8.014
15.288	0.080	0.000	0.000	8.094
15.368	0.080	54.897	38.548	8.174
15.448	0.080	104.086	73.088	8.254
15.528	0.080	0.000	0.284	8.334
15.608	0.080	0.000	0.541	8.414
15.688	0.080	0.000	0.768	8.494
15.768	0.080	0.000	1.564	8.574
15.848	0.080	0.000	3.981	8.654
15.928	0.080	0.000	3.981	8.734
16.008	0.080	0.001	21.895	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

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TABLE XII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

4. ^{91}Zr γ-ray 1466.300 keV

^{91}Zr nucleus
γ-ray observed 1466.300 keV
γ-ray originates in initial state at 1466.300 keV and goes to final state at 0.000 keV
Initial state is 5/2+ and final state is 5/2+ transition is type M1+E2
Internal conversion coefficent α is 1.000

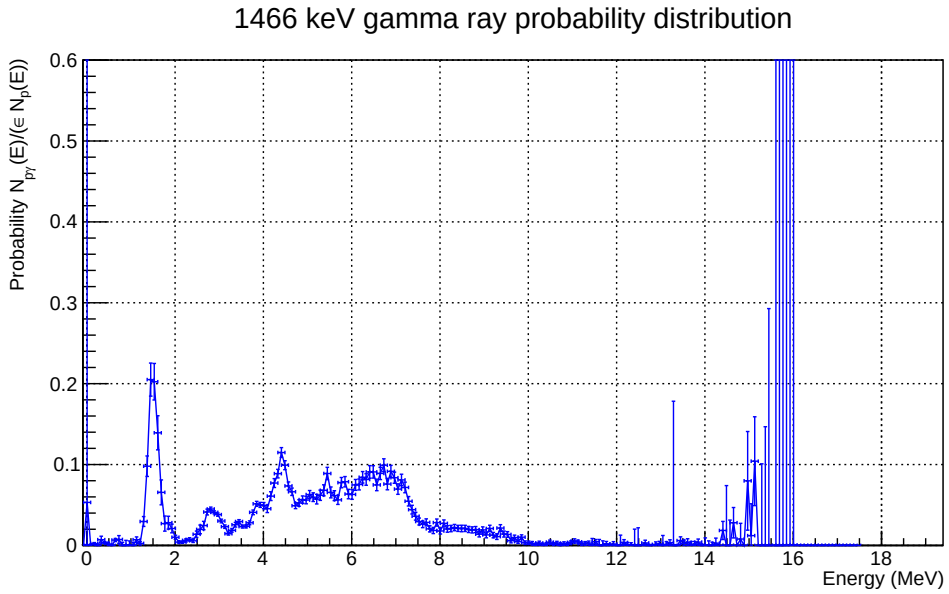

FIG. 31: Gamma ray probability distribution of the 1466.300 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XIII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 1466.300 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.001	0.001	-7.266
0.008	0.080	0.053	5090.773	-7.186
0.088	0.080	0.001	0.001	-7.106
0.168	0.080	0.002	0.001	-7.026
0.248	0.080	0.000	0.000	-6.946
0.328	0.080	0.007	0.004	-6.866
0.408	0.080	0.003	0.001	-6.786
0.488	0.080	0.002	0.002	-6.706
0.568	0.080	0.000	0.001	-6.626
0.648	0.080	0.007	0.002	-6.546
0.728	0.080	0.007	0.005	-6.466
0.808	0.080	0.000	0.004	-6.386
0.888	0.080	0.000	0.006	-6.306
0.968	0.080	0.000	0.005	-6.226
1.048	0.080	0.000	0.004	-6.146
1.128	0.080	0.007	0.003	-6.066
1.208	0.080	0.002	0.002	-5.986
1.288	0.080	0.030	0.006	-5.906
1.368	0.080	0.098	0.013	-5.826
1.448	0.080	0.205	0.020	-5.746
1.528	0.080	0.202	0.023	-5.666

Continued on next page

TABLE XIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.139	0.021	-5.586
1.688	0.080	0.066	0.015	-5.506
1.768	0.080	0.027	0.009	-5.426
1.848	0.080	0.028	0.008	-5.346
1.928	0.080	0.021	0.005	-5.266
2.008	0.080	0.010	0.003	-5.186
2.088	0.080	0.004	0.002	-5.106
2.168	0.080	0.004	0.001	-5.026
2.248	0.080	0.006	0.002	-4.946
2.328	0.080	0.007	0.002	-4.866
2.408	0.080	0.006	0.002	-4.786
2.488	0.080	0.014	0.004	-4.706
2.568	0.080	0.020	0.005	-4.626
2.648	0.080	0.025	0.005	-4.546
2.728	0.080	0.041	0.004	-4.466
2.808	0.080	0.045	0.002	-4.386
2.888	0.080	0.041	0.002	-4.306
2.968	0.080	0.038	0.002	-4.226
3.048	0.080	0.030	0.002	-4.146
3.128	0.080	0.023	0.002	-4.066
3.208	0.080	0.014	0.002	-3.986
3.288	0.080	0.019	0.002	-3.906
3.368	0.080	0.026	0.003	-3.826
3.448	0.080	0.030	0.002	-3.746
3.528	0.080	0.023	0.002	-3.666
3.608	0.080	0.024	0.002	-3.586
3.688	0.080	0.028	0.002	-3.506
3.768	0.080	0.041	0.003	-3.426
3.848	0.080	0.051	0.003	-3.346
3.928	0.080	0.050	0.003	-3.266
4.008	0.080	0.049	0.004	-3.186
4.088	0.080	0.045	0.005	-3.106
4.168	0.080	0.061	0.005	-3.026
4.248	0.080	0.077	0.005	-2.946
4.328	0.080	0.089	0.005	-2.866
4.408	0.080	0.115	0.006	-2.786
4.488	0.080	0.099	0.006	-2.706
4.568	0.080	0.074	0.005	-2.626
4.648	0.080	0.066	0.005	-2.546
4.728	0.080	0.049	0.004	-2.466
4.808	0.080	0.052	0.004	-2.386
4.888	0.080	0.057	0.005	-2.306
4.968	0.080	0.056	0.005	-2.226
5.048	0.080	0.063	0.005	-2.146
5.128	0.080	0.060	0.005	-2.066
5.208	0.080	0.057	0.006	-1.986
5.288	0.080	0.062	0.006	-1.906
5.368	0.080	0.068	0.007	-1.826
5.448	0.080	0.089	0.008	-1.746
5.528	0.080	0.065	0.007	-1.666
5.608	0.080	0.062	0.006	-1.586
5.688	0.080	0.056	0.006	-1.506
5.768	0.080	0.078	0.006	-1.426
5.848	0.080	0.079	0.006	-1.346
5.928	0.080	0.064	0.006	-1.266
6.008	0.080	0.063	0.006	-1.186
6.088	0.080	0.075	0.007	-1.106
6.168	0.080	0.075	0.007	-1.026
6.248	0.080	0.084	0.007	-0.946
6.328	0.080	0.082	0.007	-0.866
6.408	0.080	0.091	0.008	-0.786

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TABLE XIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.091	0.008	-0.706
6.568	0.080	0.075	0.007	-0.626
6.648	0.080	0.089	0.008	-0.546
6.728	0.080	0.099	0.008	-0.466
6.808	0.080	0.076	0.007	-0.386
6.888	0.080	0.092	0.007	-0.306
6.968	0.080	0.084	0.007	-0.226
7.048	0.080	0.070	0.006	-0.146
7.128	0.080	0.081	0.007	-0.066
7.208	0.080	0.072	0.007	0.014
7.288	0.080	0.055	0.006	0.094
7.368	0.080	0.044	0.005	0.174
7.448	0.080	0.036	0.005	0.254
7.528	0.080	0.030	0.004	0.334
7.608	0.080	0.026	0.004	0.414
7.688	0.080	0.029	0.004	0.494
7.768	0.080	0.021	0.004	0.574
7.848	0.080	0.019	0.004	0.654
7.928	0.080	0.028	0.004	0.734
8.008	0.080	0.018	0.004	0.814
8.088	0.080	0.027	0.004	0.894
8.168	0.080	0.020	0.004	0.974
8.248	0.080	0.021	0.004	1.054
8.328	0.080	0.022	0.004	1.134
8.408	0.080	0.021	0.004	1.214
8.488	0.080	0.021	0.004	1.294
8.568	0.080	0.021	0.004	1.374
8.648	0.080	0.020	0.004	1.454
8.728	0.080	0.019	0.004	1.534
8.808	0.080	0.020	0.004	1.614
8.888	0.080	0.014	0.003	1.694
8.968	0.080	0.019	0.004	1.774
9.048	0.080	0.013	0.004	1.854
9.128	0.080	0.021	0.004	1.934
9.208	0.080	0.013	0.003	2.014
9.288	0.080	0.011	0.003	2.094
9.368	0.080	0.022	0.004	2.174
9.448	0.080	0.014	0.004	2.254
9.528	0.080	0.014	0.003	2.334
9.608	0.080	0.006	0.003	2.414
9.688	0.080	0.010	0.003	2.494
9.768	0.080	0.005	0.002	2.574
9.848	0.080	0.010	0.003	2.654
9.928	0.080	0.003	0.002	2.734
10.008	0.080	0.003	0.002	2.814
10.088	0.080	0.003	0.002	2.894
10.168	0.080	0.001	0.002	2.974
10.248	0.080	0.003	0.002	3.054
10.328	0.080	0.001	0.002	3.134
10.408	0.080	0.002	0.002	3.214
10.488	0.080	0.004	0.002	3.294
10.568	0.080	0.001	0.002	3.374
10.648	0.080	0.003	0.002	3.454
10.728	0.080	0.000	0.003	3.534
10.808	0.080	0.002	0.002	3.614
10.888	0.080	0.002	0.002	3.694
10.968	0.080	0.004	0.002	3.774
11.048	0.080	0.005	0.003	3.854
11.128	0.080	0.004	0.002	3.934
11.208	0.080	0.002	0.002	4.014
11.288	0.080	0.002	0.002	4.094

Continued on next page

TABLE XIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.003	0.002	4.174
11.448	0.080	0.000	0.008	4.254
11.528	0.080	0.005	0.003	4.334
11.608	0.080	0.000	0.007	4.414
11.688	0.080	0.000	0.006	4.494
11.768	0.080	0.002	0.003	4.574
11.848	0.080	0.000	0.000	4.654
11.928	0.080	0.002	0.003	4.734
12.008	0.080	0.000	0.001	4.814
12.088	0.080	0.000	0.013	4.894
12.168	0.080	0.004	0.003	4.974
12.248	0.080	0.001	0.003	5.054
12.328	0.080	0.001	0.003	5.134
12.408	0.080	0.000	0.020	5.214
12.488	0.080	0.000	0.022	5.294
12.568	0.080	0.000	0.000	5.374
12.648	0.080	0.003	0.003	5.454
12.728	0.080	0.000	0.001	5.534
12.808	0.080	0.000	0.000	5.614
12.888	0.080	0.001	0.003	5.694
12.968	0.080	0.002	0.003	5.774
13.048	0.080	0.000	0.012	5.854
13.128	0.080	0.001	0.003	5.934
13.208	0.080	0.004	0.003	6.014
13.288	0.080	0.000	0.178	6.094
13.368	0.080	0.000	0.001	6.174
13.448	0.080	0.006	0.005	6.254
13.528	0.080	0.002	0.004	6.334
13.608	0.080	0.004	0.004	6.414
13.688	0.080	0.001	0.004	6.494
13.768	0.080	0.002	0.003	6.574
13.848	0.080	0.004	0.004	6.654
13.928	0.080	0.000	0.002	6.734
14.008	0.080	0.000	0.009	6.814
14.088	0.080	0.000	0.006	6.894
14.168	0.080	0.000	0.004	6.974
14.248	0.080	0.003	0.006	7.054
14.328	0.080	0.000	0.000	7.134
14.408	0.080	0.019	0.011	7.214
14.488	0.080	0.000	0.074	7.294
14.568	0.080	0.000	0.031	7.374
14.648	0.080	0.028	0.019	7.454
14.728	0.080	0.000	0.000	7.534
14.808	0.080	0.008	0.019	7.614
14.888	0.080	0.000	0.000	7.694
14.968	0.080	0.080	0.061	7.774
15.048	0.080	0.012	0.039	7.854
15.128	0.080	0.104	0.055	7.934
15.208	0.080	0.000	0.000	8.014
15.288	0.080	0.000	0.101	8.094
15.368	0.080	0.000	0.147	8.174
15.448	0.080	0.000	0.293	8.254
15.528	0.080	0.000	0.000	8.334
15.608	0.080	0.000	0.694	8.414
15.688	0.080	0.000	0.986	8.494
15.768	0.080	0.000	2.007	8.574
15.848	0.080	0.000	5.110	8.654
15.928	0.080	0.000	5.110	8.734
16.008	0.080	0.001	28.104	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XIII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

5. ^{91}Zr γ-ray 1882.180 keV

^{91}Zr nucleus
γ-ray observed 1882.180 keV
γ-ray originates in initial state at 1882.180 keV and goes to final state at 0.000 keV
Initial state is 7/2+ and final state is 5/2+ transition is type M1
Internal conversion coefficent α is 1.000

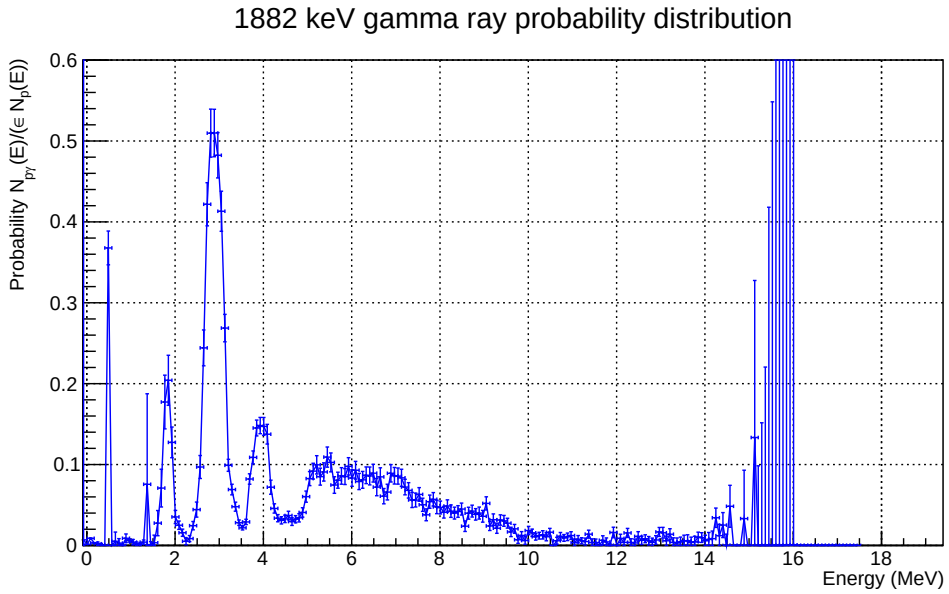

FIG. 32: Gamma ray probability distribution of the 1882.180 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XIV: ^{92}Zr(p,d)^{91}Zr probability versus energy for 1882.180 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.007	9716.285	-7.266
0.008	0.080	0.001	0.000	-7.186
0.088	0.080	0.009	0.001	-7.106
0.168	0.080	0.003	0.000	-7.026
0.248	0.080	0.002	0.002	-6.946
0.328	0.080	0.001	0.002	-6.866
0.408	0.080	0.000	0.000	-6.786
0.488	0.080	0.368	0.021	-6.706
0.568	0.080	0.000	0.000	-6.626
0.648	0.080	0.005	0.011	-6.546
0.728	0.080	0.003	0.005	-6.466
0.808	0.080	0.000	0.002	-6.386
0.888	0.080	0.009	0.005	-6.306
0.968	0.080	0.006	0.002	-6.226
1.048	0.080	0.004	0.003	-6.146
1.128	0.080	0.002	0.002	-6.066
1.208	0.080	0.001	0.002	-5.986
1.288	0.080	0.004	0.003	-5.906
1.368	0.080	0.076	0.112	-5.826
1.448	0.080	0.001	0.004	-5.746
1.528	0.080	0.003	0.009	-5.666

Continued on next page

TABLE XIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.028	0.016	-5.586
1.688	0.080	0.071	0.023	-5.506
1.768	0.080	0.177	0.033	-5.426
1.848	0.080	0.204	0.031	-5.346
1.928	0.080	0.127	0.019	-5.266
2.008	0.080	0.035	0.008	-5.186
2.088	0.080	0.025	0.005	-5.106
2.168	0.080	0.016	0.004	-5.026
2.248	0.080	0.005	0.004	-4.946
2.328	0.080	0.008	0.004	-4.866
2.408	0.080	0.024	0.005	-4.786
2.488	0.080	0.044	0.009	-4.706
2.568	0.080	0.097	0.014	-4.626
2.648	0.080	0.244	0.022	-4.546
2.728	0.080	0.422	0.027	-4.466
2.808	0.080	0.510	0.030	-4.386
2.888	0.080	0.510	0.029	-4.306
2.968	0.080	0.482	0.028	-4.226
3.048	0.080	0.413	0.025	-4.146
3.128	0.080	0.269	0.017	-4.066
3.208	0.080	0.099	0.007	-3.986
3.288	0.080	0.069	0.007	-3.906
3.368	0.080	0.048	0.006	-3.826
3.448	0.080	0.028	0.003	-3.746
3.528	0.080	0.022	0.003	-3.666
3.608	0.080	0.029	0.003	-3.586
3.688	0.080	0.082	0.006	-3.506
3.768	0.080	0.109	0.008	-3.426
3.848	0.080	0.145	0.010	-3.346
3.928	0.080	0.148	0.010	-3.266
4.008	0.080	0.147	0.011	-3.186
4.088	0.080	0.138	0.012	-3.106
4.168	0.080	0.072	0.009	-3.026
4.248	0.080	0.046	0.006	-2.946
4.328	0.080	0.034	0.004	-2.866
4.408	0.080	0.031	0.004	-2.786
4.488	0.080	0.033	0.005	-2.706
4.568	0.080	0.037	0.005	-2.626
4.648	0.080	0.030	0.005	-2.546
4.728	0.080	0.032	0.004	-2.466
4.808	0.080	0.034	0.005	-2.386
4.888	0.080	0.041	0.006	-2.306
4.968	0.080	0.060	0.007	-2.226
5.048	0.080	0.083	0.009	-2.146
5.128	0.080	0.092	0.010	-2.066
5.208	0.080	0.100	0.011	-1.986
5.288	0.080	0.085	0.010	-1.906
5.368	0.080	0.091	0.011	-1.826
5.448	0.080	0.109	0.012	-1.746
5.528	0.080	0.103	0.012	-1.666
5.608	0.080	0.075	0.010	-1.586
5.688	0.080	0.081	0.010	-1.506
5.768	0.080	0.086	0.010	-1.426
5.848	0.080	0.085	0.010	-1.346
5.928	0.080	0.098	0.011	-1.266
6.008	0.080	0.083	0.010	-1.186
6.088	0.080	0.093	0.011	-1.106
6.168	0.080	0.079	0.010	-1.026
6.248	0.080	0.081	0.010	-0.946
6.328	0.080	0.087	0.010	-0.866
6.408	0.080	0.086	0.011	-0.786

Continued on next page

TABLE XIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.089	0.011	-0.706
6.568	0.080	0.072	0.011	-0.626
6.648	0.080	0.085	0.011	-0.546
6.728	0.080	0.061	0.009	-0.466
6.808	0.080	0.066	0.010	-0.386
6.888	0.080	0.089	0.011	-0.306
6.968	0.080	0.086	0.010	-0.226
7.048	0.080	0.086	0.010	-0.146
7.128	0.080	0.084	0.011	-0.066
7.208	0.080	0.072	0.010	0.014
7.288	0.080	0.068	0.009	0.094
7.368	0.080	0.056	0.009	0.174
7.448	0.080	0.056	0.009	0.254
7.528	0.080	0.063	0.008	0.334
7.608	0.080	0.050	0.008	0.414
7.688	0.080	0.038	0.007	0.494
7.768	0.080	0.054	0.008	0.574
7.848	0.080	0.057	0.008	0.654
7.928	0.080	0.048	0.008	0.734
8.008	0.080	0.047	0.008	0.814
8.088	0.080	0.041	0.007	0.894
8.168	0.080	0.049	0.008	0.974
8.248	0.080	0.042	0.008	1.054
8.328	0.080	0.040	0.007	1.134
8.408	0.080	0.042	0.007	1.214
8.488	0.080	0.045	0.007	1.294
8.568	0.080	0.024	0.007	1.374
8.648	0.080	0.040	0.007	1.454
8.728	0.080	0.042	0.007	1.534
8.808	0.080	0.038	0.007	1.614
8.888	0.080	0.040	0.007	1.694
8.968	0.080	0.036	0.007	1.774
9.048	0.080	0.052	0.008	1.854
9.128	0.080	0.024	0.006	1.934
9.208	0.080	0.032	0.007	2.014
9.288	0.080	0.021	0.006	2.094
9.368	0.080	0.031	0.006	2.174
9.448	0.080	0.030	0.007	2.254
9.528	0.080	0.027	0.006	2.334
9.608	0.080	0.017	0.006	2.414
9.688	0.080	0.021	0.005	2.494
9.768	0.080	0.007	0.004	2.574
9.848	0.080	0.012	0.005	2.654
9.928	0.080	0.006	0.005	2.734
10.008	0.080	0.018	0.005	2.814
10.088	0.080	0.016	0.005	2.894
10.168	0.080	0.011	0.004	2.974
10.248	0.080	0.012	0.004	3.054
10.328	0.080	0.013	0.005	3.134
10.408	0.080	0.011	0.005	3.214
10.488	0.080	0.016	0.005	3.294
10.568	0.080	0.000	0.000	3.374
10.648	0.080	0.006	0.004	3.454
10.728	0.080	0.011	0.005	3.534
10.808	0.080	0.009	0.004	3.614
10.888	0.080	0.011	0.005	3.694
10.968	0.080	0.012	0.005	3.774
11.048	0.080	0.003	0.004	3.854
11.128	0.080	0.008	0.004	3.934
11.208	0.080	0.006	0.004	4.014
11.288	0.080	0.005	0.004	4.094

Continued on next page

TABLE XIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.014	0.005	4.174
11.448	0.080	0.004	0.005	4.254
11.528	0.080	0.004	0.004	4.334
11.608	0.080	0.000	0.000	4.414
11.688	0.080	0.006	0.006	4.494
11.768	0.080	0.004	0.005	4.574
11.848	0.080	0.000	0.002	4.654
11.928	0.080	0.016	0.007	4.734
12.008	0.080	0.000	0.000	4.814
12.088	0.080	0.009	0.005	4.894
12.168	0.080	0.004	0.005	4.974
12.248	0.080	0.015	0.006	5.054
12.328	0.080	0.004	0.005	5.134
12.408	0.080	0.003	0.005	5.214
12.488	0.080	0.011	0.006	5.294
12.568	0.080	0.006	0.005	5.374
12.648	0.080	0.008	0.005	5.454
12.728	0.080	0.006	0.005	5.534
12.808	0.080	0.004	0.005	5.614
12.888	0.080	0.007	0.005	5.694
12.968	0.080	0.017	0.006	5.774
13.048	0.080	0.016	0.007	5.854
13.128	0.080	0.006	0.006	5.934
13.208	0.080	0.014	0.007	6.014
13.288	0.080	0.004	0.006	6.094
13.368	0.080	0.003	0.006	6.174
13.448	0.080	0.004	0.006	6.254
13.528	0.080	0.006	0.007	6.334
13.608	0.080	0.006	0.007	6.414
13.688	0.080	0.004	0.007	6.494
13.768	0.080	0.004	0.007	6.574
13.848	0.080	0.010	0.006	6.654
13.928	0.080	0.010	0.006	6.734
14.008	0.080	0.006	0.007	6.814
14.088	0.080	0.007	0.009	6.894
14.168	0.080	0.008	0.009	6.974
14.248	0.080	0.034	0.012	7.054
14.328	0.080	0.012	0.014	7.134
14.408	0.080	0.025	0.015	7.214
14.488	0.080	0.000	0.014	7.294
14.568	0.080	0.048	0.026	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.000	0.000	7.534
14.808	0.080	0.000	0.000	7.614
14.888	0.080	0.033	0.060	7.694
14.968	0.080	0.000	0.000	7.774
15.048	0.080	0.000	0.000	7.854
15.128	0.080	0.133	0.194	7.934
15.208	0.080	0.000	0.098	8.014
15.288	0.080	0.000	0.152	8.094
15.368	0.080	0.000	0.221	8.174
15.448	0.080	0.000	0.418	8.254
15.528	0.080	0.000	0.548	8.334
15.608	0.080	0.000	1.043	8.414
15.688	0.080	0.000	1.482	8.494
15.768	0.080	0.000	3.016	8.574
15.848	0.080	0.000	7.678	8.654
15.928	0.080	0.000	7.678	8.734
16.008	0.080	0.001	42.228	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

6. ^{91}Zr γ-ray 2042.350 keV

^{91}Zr nucleus
γ-ray observed 2042.350 keV
γ-ray originates in initial state at 2042.350 keV and goes to final state at 0.000 keV
Initial state is 3/2+ and final state is 5/2+ transition is type M1
Internal conversion coefficent α is 1.000

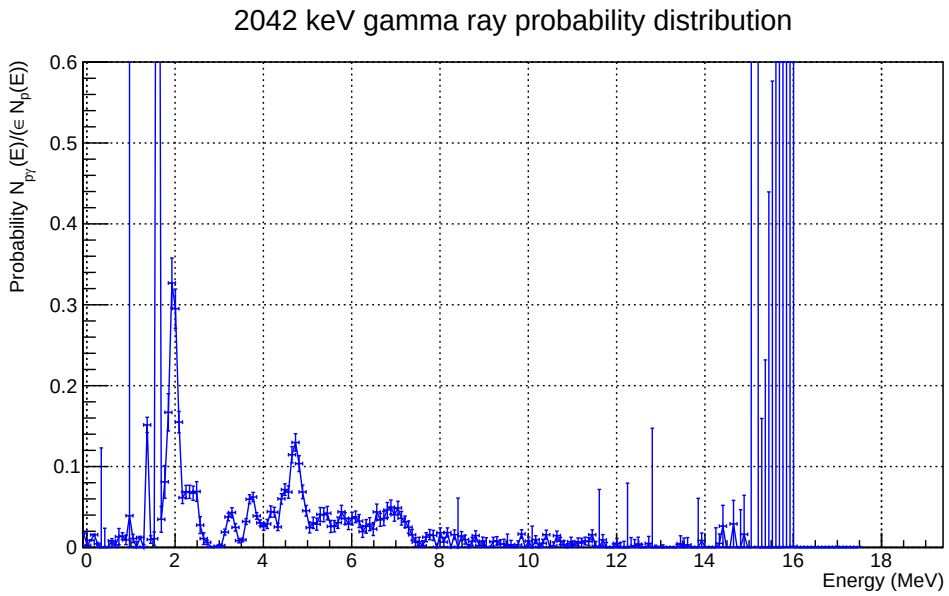

FIG. 33: Gamma ray probability distribution of the 2042.350 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XV: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2042.350 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.018	0.001	-7.266
0.008	0.080	0.003	0.001	-7.186
0.088	0.080	0.009	0.001	-7.106
0.168	0.080	0.016	0.001	-7.026
0.248	0.080	0.004	0.002	-6.946
0.328	0.080	0.000	0.123	-6.866
0.408	0.080	0.000	0.023	-6.786
0.488	0.080	0.000	0.000	-6.706
0.568	0.080	0.008	0.003	-6.626
0.648	0.080	0.003	0.004	-6.546
0.728	0.080	0.013	0.010	-6.466
0.808	0.080	0.014	0.004	-6.386
0.888	0.080	0.009	0.006	-6.306
0.968	0.080	0.039	313168.750	-6.226
1.048	0.080	0.011	0.005	-6.146
1.128	0.080	0.000	0.007	-6.066
1.208	0.080	0.012	0.001	-5.986
1.288	0.080	0.000	0.004	-5.906
1.368	0.080	0.151	0.009	-5.826
1.448	0.080	0.010	0.005	-5.746
1.528	0.080	0.011	0.008	-5.666

Continued on next page

TABLE XV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	1.756	493636.781	-5.586
1.688	0.080	0.035	0.016	-5.506
1.768	0.080	0.081	0.020	-5.426
1.848	0.080	0.167	0.023	-5.346
1.928	0.080	0.327	0.031	-5.266
2.008	0.080	0.295	0.024	-5.186
2.088	0.080	0.155	0.013	-5.106
2.168	0.080	0.062	0.007	-5.026
2.248	0.080	0.069	0.008	-4.946
2.328	0.080	0.069	0.008	-4.866
2.408	0.080	0.067	0.009	-4.786
2.488	0.080	0.069	0.012	-4.706
2.568	0.080	0.028	0.010	-4.626
2.648	0.080	0.011	0.007	-4.546
2.728	0.080	0.006	0.003	-4.466
2.808	0.080	0.000	0.000	-4.386
2.888	0.080	0.000	0.001	-4.306
2.968	0.080	0.001	0.001	-4.226
3.048	0.080	0.002	0.002	-4.146
3.128	0.080	0.019	0.004	-4.066
3.208	0.080	0.038	0.005	-3.986
3.288	0.080	0.043	0.006	-3.906
3.368	0.080	0.025	0.005	-3.826
3.448	0.080	0.008	0.003	-3.746
3.528	0.080	0.009	0.002	-3.666
3.608	0.080	0.032	0.004	-3.586
3.688	0.080	0.060	0.006	-3.506
3.768	0.080	0.062	0.006	-3.426
3.848	0.080	0.039	0.004	-3.346
3.928	0.080	0.030	0.004	-3.266
4.008	0.080	0.026	0.005	-3.186
4.088	0.080	0.029	0.006	-3.106
4.168	0.080	0.044	0.007	-3.026
4.248	0.080	0.043	0.006	-2.946
4.328	0.080	0.025	0.004	-2.866
4.408	0.080	0.060	0.006	-2.786
4.488	0.080	0.072	0.007	-2.706
4.568	0.080	0.068	0.008	-2.626
4.648	0.080	0.115	0.010	-2.546
4.728	0.080	0.130	0.011	-2.466
4.808	0.080	0.104	0.010	-2.386
4.888	0.080	0.069	0.008	-2.306
4.968	0.080	0.045	0.007	-2.226
5.048	0.080	0.024	0.007	-2.146
5.128	0.080	0.031	0.007	-2.066
5.208	0.080	0.029	0.007	-1.986
5.288	0.080	0.041	0.009	-1.906
5.368	0.080	0.040	0.009	-1.826
5.448	0.080	0.042	0.008	-1.746
5.528	0.080	0.026	0.007	-1.666
5.608	0.080	0.026	0.007	-1.586
5.688	0.080	0.031	0.007	-1.506
5.768	0.080	0.044	0.008	-1.426
5.848	0.080	0.036	0.007	-1.346
5.928	0.080	0.029	0.007	-1.266
6.008	0.080	0.036	0.008	-1.186
6.088	0.080	0.038	0.007	-1.106
6.168	0.080	0.033	0.008	-1.026
6.248	0.080	0.020	0.007	-0.946
6.328	0.080	0.026	0.008	-0.866
6.408	0.080	0.029	0.008	-0.786

Continued on next page

TABLE XV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.023	0.008	-0.706
6.568	0.080	0.044	0.010	-0.626
6.648	0.080	0.034	0.008	-0.546
6.728	0.080	0.036	0.009	-0.466
6.808	0.080	0.046	0.009	-0.386
6.888	0.080	0.050	0.009	-0.306
6.968	0.080	0.040	0.008	-0.226
7.048	0.080	0.049	0.008	-0.146
7.128	0.080	0.036	0.008	-0.066
7.208	0.080	0.032	0.007	0.014
7.288	0.080	0.025	0.007	0.094
7.368	0.080	0.015	0.007	0.174
7.448	0.080	0.007	0.005	0.254
7.528	0.080	0.007	0.006	0.334
7.608	0.080	0.002	0.006	0.414
7.688	0.080	0.013	0.006	0.494
7.768	0.080	0.016	0.006	0.574
7.848	0.080	0.015	0.006	0.654
7.928	0.080	0.000	0.004	0.734
8.008	0.080	0.018	0.006	0.814
8.088	0.080	0.007	0.006	0.894
8.168	0.080	0.018	0.006	0.974
8.248	0.080	0.000	0.000	1.054
8.328	0.080	0.016	0.006	1.134
8.408	0.080	0.000	0.061	1.214
8.488	0.080	0.014	0.005	1.294
8.568	0.080	0.010	0.005	1.374
8.648	0.080	0.000	0.004	1.454
8.728	0.080	0.007	0.005	1.534
8.808	0.080	0.015	0.006	1.614
8.888	0.080	0.002	0.005	1.694
8.968	0.080	0.008	0.005	1.774
9.048	0.080	0.001	0.012	1.854
9.128	0.080	0.000	0.000	1.934
9.208	0.080	0.007	0.005	2.014
9.288	0.080	0.008	0.005	2.094
9.368	0.080	0.004	0.005	2.174
9.448	0.080	0.004	0.006	2.254
9.528	0.080	0.000	0.016	2.334
9.608	0.080	0.003	0.005	2.414
9.688	0.080	0.000	0.000	2.494
9.768	0.080	0.003	0.005	2.574
9.848	0.080	0.017	0.005	2.654
9.928	0.080	0.000	0.000	2.734
10.008	0.080	0.008	0.005	2.814
10.088	0.080	0.000	0.026	2.894
10.168	0.080	0.010	0.005	2.974
10.248	0.080	0.000	0.004	3.054
10.328	0.080	0.005	0.005	3.134
10.408	0.080	0.016	0.006	3.214
10.488	0.080	0.000	0.000	3.294
10.568	0.080	0.002	0.005	3.374
10.648	0.080	0.015	0.006	3.454
10.728	0.080	0.008	0.005	3.534
10.808	0.080	0.003	0.005	3.614
10.888	0.080	0.000	0.005	3.694
10.968	0.080	0.007	0.006	3.774
11.048	0.080	0.003	0.005	3.854
11.128	0.080	0.007	0.005	3.934
11.208	0.080	0.005	0.006	4.014
11.288	0.080	0.008	0.005	4.094

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TABLE XV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.007	0.005	4.174
11.448	0.080	0.016	0.006	4.254
11.528	0.080	0.002	0.006	4.334
11.608	0.080	0.000	0.072	4.414
11.688	0.080	0.009	0.007	4.494
11.768	0.080	0.000	0.006	4.574
11.848	0.080	0.000	0.000	4.654
11.928	0.080	0.000	0.004	4.734
12.008	0.080	0.005	0.006	4.814
12.088	0.080	0.000	0.006	4.894
12.168	0.080	0.000	0.008	4.974
12.248	0.080	0.000	0.079	5.054
12.328	0.080	0.001	0.011	5.134
12.408	0.080	0.002	0.008	5.214
12.488	0.080	0.004	0.008	5.294
12.568	0.080	0.000	0.004	5.374
12.648	0.080	0.000	0.000	5.454
12.728	0.080	0.005	0.009	5.534
12.808	0.080	0.000	0.147	5.614
12.888	0.080	0.000	0.003	5.694
12.968	0.080	0.000	0.000	5.774
13.048	0.080	0.000	0.003	5.854
13.128	0.080	0.000	0.000	5.934
13.208	0.080	0.000	0.000	6.014
13.288	0.080	0.000	0.000	6.094
13.368	0.080	0.000	0.004	6.174
13.448	0.080	0.005	0.010	6.254
13.528	0.080	0.000	0.012	6.334
13.608	0.080	0.003	0.009	6.414
13.688	0.080	0.000	0.000	6.494
13.768	0.080	0.000	0.000	6.574
13.848	0.080	0.000	0.061	6.654
13.928	0.080	0.009	0.009	6.734
14.008	0.080	0.000	0.000	6.814
14.088	0.080	0.000	0.000	6.894
14.168	0.080	0.000	0.000	6.974
14.248	0.080	0.000	0.024	7.054
14.328	0.080	0.005	0.012	7.134
14.408	0.080	0.026	0.026	7.214
14.488	0.080	0.000	0.000	7.294
14.568	0.080	0.000	0.000	7.374
14.648	0.080	0.029	0.029	7.454
14.728	0.080	0.000	0.000	7.534
14.808	0.080	0.000	0.047	7.614
14.888	0.080	0.016	0.048	7.694
14.968	0.080	0.000	0.000	7.774
15.048	0.080	0.000	0.000	7.854
15.128	0.080	17.506	4.761	7.934
15.208	0.080	0.000	0.000	8.014
15.288	0.080	0.000	0.159	8.094
15.368	0.080	0.000	0.232	8.174
15.448	0.080	0.000	0.440	8.254
15.528	0.080	0.000	0.577	8.334
15.608	0.080	0.000	1.096	8.414
15.688	0.080	0.000	1.558	8.494
15.768	0.080	0.000	3.171	8.574
15.848	0.080	0.000	8.071	8.654
15.928	0.080	0.000	8.071	8.734
16.008	0.080	0.001	44.392	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

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TABLE XV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

7. ^{91}Zr γ-ray 1020.000 keV

^{91}Zr nucleus
γ-ray observed 1020.000 keV
γ-ray originates in initial state at 1020.000 keV and goes to final state at 0.000 keV
Initial state is 0/2+ and final state is 0/2+ transition is type X1
Internal conversion coefficent α is 1.000

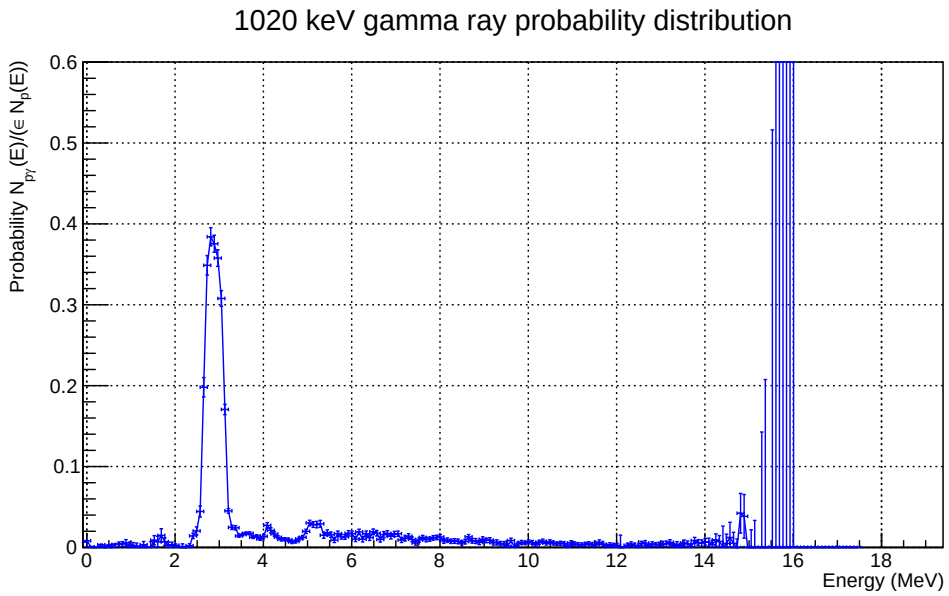

FIG. 34: Gamma ray probability distribution of the 1020.000 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XVI: ^{92}Zr(p,d)^{91}Zr probability versus energy for 1020.000 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.007	0.000	-7.266
0.008	0.080	0.008	0.000	-7.186
0.088	0.080	0.001	0.001	-7.106
0.168	0.080	0.000	0.000	-7.026
0.248	0.080	0.000	0.000	-6.946
0.328	0.080	0.003	0.001	-6.866
0.408	0.080	0.000	0.000	-6.786
0.488	0.080	0.002	0.001	-6.706
0.568	0.080	0.000	0.004	-6.626
0.648	0.080	0.004	0.000	-6.546
0.728	0.080	0.004	0.003	-6.466
0.808	0.080	0.004	0.003	-6.386
0.888	0.080	0.006	0.004	-6.306
0.968	0.080	0.002	0.004	-6.226
1.048	0.080	0.002	0.003	-6.146
1.128	0.080	0.002	0.004	-6.066
1.208	0.080	0.000	0.000	-5.986
1.288	0.080	0.003	0.004	-5.906
1.368	0.080	0.000	0.000	-5.826
1.448	0.080	0.001	0.007	-5.746
1.528	0.080	0.009	0.006	-5.666

Continued on next page

TABLE XVI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.007	0.007	-5.586
1.688	0.080	0.015	0.008	-5.506
1.768	0.080	0.007	0.005	-5.426
1.848	0.080	0.003	0.003	-5.346
1.928	0.080	0.003	0.003	-5.266
2.008	0.080	0.003	0.002	-5.186
2.088	0.080	0.000	0.001	-5.106
2.168	0.080	0.000	0.004	-5.026
2.248	0.080	0.000	0.001	-4.946
2.328	0.080	0.002	0.002	-4.866
2.408	0.080	0.014	0.003	-4.786
2.488	0.080	0.020	0.005	-4.706
2.568	0.080	0.044	0.007	-4.626
2.648	0.080	0.198	0.012	-4.546
2.728	0.080	0.349	0.012	-4.466
2.808	0.080	0.384	0.011	-4.386
2.888	0.080	0.375	0.011	-4.306
2.968	0.080	0.358	0.010	-4.226
3.048	0.080	0.308	0.010	-4.146
3.128	0.080	0.171	0.006	-4.066
3.208	0.080	0.045	0.003	-3.986
3.288	0.080	0.025	0.003	-3.906
3.368	0.080	0.024	0.003	-3.826
3.448	0.080	0.014	0.002	-3.746
3.528	0.080	0.016	0.001	-3.666
3.608	0.080	0.018	0.002	-3.586
3.688	0.080	0.017	0.002	-3.506
3.768	0.080	0.013	0.002	-3.426
3.848	0.080	0.014	0.002	-3.346
3.928	0.080	0.010	0.002	-3.266
4.008	0.080	0.014	0.002	-3.186
4.088	0.080	0.027	0.003	-3.106
4.168	0.080	0.021	0.003	-3.026
4.248	0.080	0.017	0.003	-2.946
4.328	0.080	0.013	0.002	-2.866
4.408	0.080	0.010	0.002	-2.786
4.488	0.080	0.010	0.002	-2.706
4.568	0.080	0.009	0.002	-2.626
4.648	0.080	0.007	0.002	-2.546
4.728	0.080	0.007	0.002	-2.466
4.808	0.080	0.010	0.002	-2.386
4.888	0.080	0.013	0.002	-2.306
4.968	0.080	0.020	0.003	-2.226
5.048	0.080	0.030	0.003	-2.146
5.128	0.080	0.028	0.003	-2.066
5.208	0.080	0.028	0.004	-1.986
5.288	0.080	0.029	0.004	-1.906
5.368	0.080	0.015	0.004	-1.826
5.448	0.080	0.018	0.004	-1.746
5.528	0.080	0.016	0.003	-1.666
5.608	0.080	0.009	0.003	-1.586
5.688	0.080	0.017	0.003	-1.506
5.768	0.080	0.013	0.003	-1.426
5.848	0.080	0.013	0.003	-1.346
5.928	0.080	0.017	0.003	-1.266
6.008	0.080	0.017	0.003	-1.186
6.088	0.080	0.010	0.003	-1.106
6.168	0.080	0.019	0.003	-1.026
6.248	0.080	0.010	0.003	-0.946
6.328	0.080	0.017	0.003	-0.866
6.408	0.080	0.012	0.003	-0.786

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TABLE XVI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.019	0.004	-0.706
6.568	0.080	0.018	0.003	-0.626
6.648	0.080	0.010	0.003	-0.546
6.728	0.080	0.016	0.004	-0.466
6.808	0.080	0.017	0.003	-0.386
6.888	0.080	0.014	0.003	-0.306
6.968	0.080	0.017	0.003	-0.226
7.048	0.080	0.017	0.003	-0.146
7.128	0.080	0.009	0.003	-0.066
7.208	0.080	0.011	0.003	0.014
7.288	0.080	0.014	0.003	0.094
7.368	0.080	0.010	0.003	0.174
7.448	0.080	0.005	0.003	0.254
7.528	0.080	0.009	0.003	0.334
7.608	0.080	0.012	0.002	0.414
7.688	0.080	0.010	0.003	0.494
7.768	0.080	0.010	0.003	0.574
7.848	0.080	0.012	0.003	0.654
7.928	0.080	0.012	0.003	0.734
8.008	0.080	0.013	0.003	0.814
8.088	0.080	0.008	0.003	0.894
8.168	0.080	0.009	0.003	0.974
8.248	0.080	0.007	0.003	1.054
8.328	0.080	0.008	0.003	1.134
8.408	0.080	0.008	0.003	1.214
8.488	0.080	0.006	0.003	1.294
8.568	0.080	0.007	0.003	1.374
8.648	0.080	0.013	0.003	1.454
8.728	0.080	0.008	0.003	1.534
8.808	0.080	0.008	0.003	1.614
8.888	0.080	0.006	0.003	1.694
8.968	0.080	0.010	0.003	1.774
9.048	0.080	0.009	0.003	1.854
9.128	0.080	0.009	0.003	1.934
9.208	0.080	0.006	0.003	2.014
9.288	0.080	0.006	0.003	2.094
9.368	0.080	0.005	0.003	2.174
9.448	0.080	0.004	0.003	2.254
9.528	0.080	0.002	0.003	2.334
9.608	0.080	0.009	0.003	2.414
9.688	0.080	0.001	0.002	2.494
9.768	0.080	0.004	0.002	2.574
9.848	0.080	0.006	0.002	2.654
9.928	0.080	0.005	0.002	2.734
10.008	0.080	0.007	0.002	2.814
10.088	0.080	0.006	0.002	2.894
10.168	0.080	0.003	0.002	2.974
10.248	0.080	0.006	0.002	3.054
10.328	0.080	0.008	0.002	3.134
10.408	0.080	0.005	0.002	3.214
10.488	0.080	0.007	0.002	3.294
10.568	0.080	0.005	0.002	3.374
10.648	0.080	0.005	0.002	3.454
10.728	0.080	0.005	0.002	3.534
10.808	0.080	0.005	0.002	3.614
10.888	0.080	0.001	0.002	3.694
10.968	0.080	0.006	0.003	3.774
11.048	0.080	0.004	0.003	3.854
11.128	0.080	0.004	0.002	3.934
11.208	0.080	0.003	0.002	4.014
11.288	0.080	0.004	0.002	4.094

Continued on next page

TABLE XVI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.005	0.002	4.174
11.448	0.080	0.003	0.002	4.254
11.528	0.080	0.003	0.002	4.334
11.608	0.080	0.006	0.003	4.414
11.688	0.080	0.004	0.003	4.494
11.768	0.080	0.002	0.002	4.574
11.848	0.080	0.003	0.003	4.654
11.928	0.080	0.003	0.002	4.734
12.008	0.080	0.003	0.002	4.814
12.088	0.080	0.000	0.015	4.894
12.168	0.080	0.000	0.000	4.974
12.248	0.080	0.003	0.002	5.054
12.328	0.080	0.004	0.003	5.134
12.408	0.080	0.003	0.003	5.214
12.488	0.080	0.000	0.000	5.294
12.568	0.080	0.005	0.003	5.374
12.648	0.080	0.005	0.003	5.454
12.728	0.080	0.001	0.003	5.534
12.808	0.080	0.004	0.003	5.614
12.888	0.080	0.004	0.002	5.694
12.968	0.080	0.004	0.003	5.774
13.048	0.080	0.005	0.003	5.854
13.128	0.080	0.004	0.003	5.934
13.208	0.080	0.006	0.003	6.014
13.288	0.080	0.002	0.003	6.094
13.368	0.080	0.004	0.003	6.174
13.448	0.080	0.001	0.004	6.254
13.528	0.080	0.006	0.004	6.334
13.608	0.080	0.004	0.004	6.414
13.688	0.080	0.001	0.003	6.494
13.768	0.080	0.009	0.004	6.574
13.848	0.080	0.006	0.003	6.654
13.928	0.080	0.005	0.004	6.734
14.008	0.080	0.007	0.004	6.814
14.088	0.080	0.007	0.005	6.894
14.168	0.080	0.004	0.005	6.974
14.248	0.080	0.009	0.007	7.054
14.328	0.080	0.007	0.007	7.134
14.408	0.080	0.001	0.025	7.214
14.488	0.080	0.005	0.012	7.294
14.568	0.080	0.012	0.019	7.374
14.648	0.080	0.005	0.013	7.454
14.728	0.080	0.000	0.010	7.534
14.808	0.080	0.042	0.025	7.614
14.888	0.080	0.038	0.027	7.694
14.968	0.080	0.000	0.000	7.774
15.048	0.080	0.000	0.022	7.854
15.128	0.080	0.000	0.033	7.934
15.208	0.080	0.000	0.000	8.014
15.288	0.080	0.000	0.143	8.094
15.368	0.080	0.000	0.208	8.174
15.448	0.080	0.000	0.000	8.254
15.528	0.080	0.000	0.516	8.334
15.608	0.080	0.000	0.981	8.414
15.688	0.080	0.000	1.395	8.494
15.768	0.080	0.000	2.839	8.574
15.848	0.080	0.000	7.227	8.654
15.928	0.080	0.000	7.227	8.734
16.008	0.080	0.000	39.746	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

8. ^{91}Zr γ-ray 1151.600 keV

^{91}Zr nucleus
γ-ray observed 1151.600 keV
γ-ray originates in initial state at 2356.400 keV and goes to final state at 1204.770 keV
Initial state is (1/2)- and final state is (1/2)+ transition is type E1
Internal conversion coefficent α is 1.000

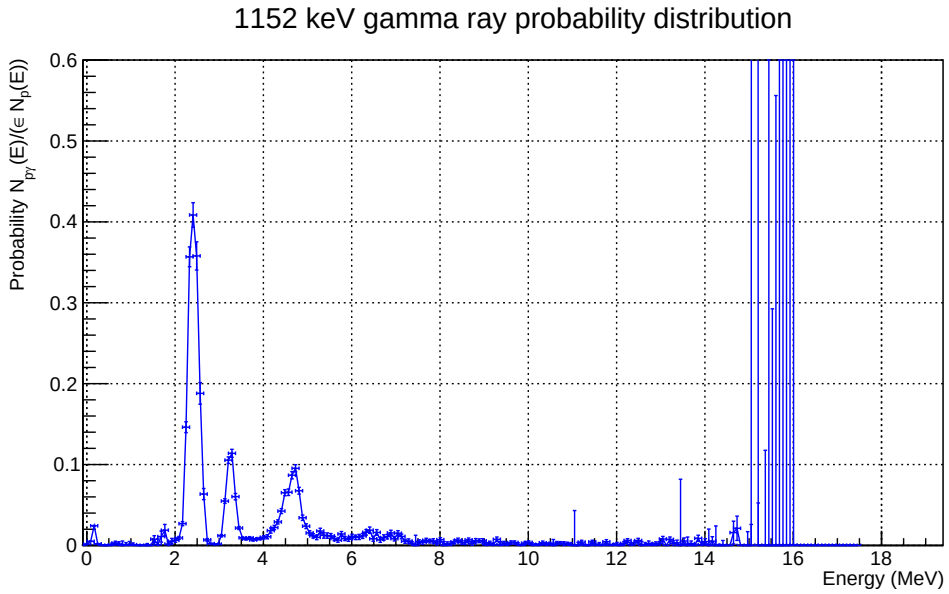

FIG. 35: Gamma ray probability distribution of the 1151.600 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XVII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 1151.600 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.001	0.001	-7.266
0.008	0.080	0.002	0.000	-7.186
0.088	0.080	0.005	0.000	-7.106
0.168	0.080	0.024	0.000	-7.026
0.248	0.080	0.002	0.000	-6.946
0.328	0.080	0.000	0.000	-6.866
0.408	0.080	0.000	0.001	-6.786
0.488	0.080	0.000	0.001	-6.706
0.568	0.080	0.001	0.002	-6.626
0.648	0.080	0.003	0.002	-6.546
0.728	0.080	0.002	0.003	-6.466
0.808	0.080	0.000	0.005	-6.386
0.888	0.080	0.001	0.003	-6.306
0.968	0.080	0.001	0.004	-6.226
1.048	0.080	0.001	0.002	-6.146
1.128	0.080	0.000	0.000	-6.066
1.208	0.080	0.000	0.001	-5.986
1.288	0.080	0.000	0.000	-5.906
1.368	0.080	0.000	0.002	-5.826
1.448	0.080	0.000	0.000	-5.746
1.528	0.080	0.008	0.004	-5.666

Continued on next page

TABLE XVII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.001	0.007	-5.586
1.688	0.080	0.011	0.007	-5.506
1.768	0.080	0.019	0.007	-5.426
1.848	0.080	0.002	0.003	-5.346
1.928	0.080	0.005	0.003	-5.266
2.008	0.080	0.006	0.002	-5.186
2.088	0.080	0.009	0.002	-5.106
2.168	0.080	0.027	0.002	-5.026
2.248	0.080	0.146	0.007	-4.946
2.328	0.080	0.357	0.012	-4.866
2.408	0.080	0.408	0.015	-4.786
2.488	0.080	0.358	0.017	-4.706
2.568	0.080	0.188	0.013	-4.626
2.648	0.080	0.064	0.007	-4.546
2.728	0.080	0.007	0.002	-4.466
2.808	0.080	0.002	0.001	-4.386
2.888	0.080	0.001	0.000	-4.306
2.968	0.080	0.002	0.001	-4.226
3.048	0.080	0.012	0.001	-4.146
3.128	0.080	0.055	0.003	-4.066
3.208	0.080	0.105	0.004	-3.986
3.288	0.080	0.114	0.005	-3.906
3.368	0.080	0.060	0.004	-3.826
3.448	0.080	0.022	0.002	-3.746
3.528	0.080	0.009	0.001	-3.666
3.608	0.080	0.008	0.001	-3.586
3.688	0.080	0.009	0.001	-3.506
3.768	0.080	0.007	0.001	-3.426
3.848	0.080	0.008	0.001	-3.346
3.928	0.080	0.009	0.001	-3.266
4.008	0.080	0.010	0.002	-3.186
4.088	0.080	0.011	0.003	-3.106
4.168	0.080	0.018	0.003	-3.026
4.248	0.080	0.022	0.003	-2.946
4.328	0.080	0.029	0.003	-2.866
4.408	0.080	0.043	0.003	-2.786
4.488	0.080	0.065	0.004	-2.706
4.568	0.080	0.066	0.004	-2.626
4.648	0.080	0.087	0.005	-2.546
4.728	0.080	0.095	0.004	-2.466
4.808	0.080	0.068	0.004	-2.386
4.888	0.080	0.034	0.003	-2.306
4.968	0.080	0.024	0.003	-2.226
5.048	0.080	0.015	0.003	-2.146
5.128	0.080	0.012	0.003	-2.066
5.208	0.080	0.010	0.003	-1.986
5.288	0.080	0.018	0.003	-1.906
5.368	0.080	0.012	0.003	-1.826
5.448	0.080	0.012	0.003	-1.746
5.528	0.080	0.012	0.003	-1.666
5.608	0.080	0.009	0.003	-1.586
5.688	0.080	0.007	0.002	-1.506
5.768	0.080	0.014	0.003	-1.426
5.848	0.080	0.009	0.002	-1.346
5.928	0.080	0.008	0.003	-1.266
6.008	0.080	0.011	0.003	-1.186
6.088	0.080	0.010	0.003	-1.106
6.168	0.080	0.010	0.003	-1.026
6.248	0.080	0.012	0.003	-0.946
6.328	0.080	0.016	0.003	-0.866
6.408	0.080	0.019	0.004	-0.786

Continued on next page

TABLE XVII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.008	0.003	-0.706
6.568	0.080	0.016	0.003	-0.626
6.648	0.080	0.007	0.003	-0.546
6.728	0.080	0.010	0.003	-0.466
6.808	0.080	0.011	0.003	-0.386
6.888	0.080	0.015	0.003	-0.306
6.968	0.080	0.008	0.003	-0.226
7.048	0.080	0.015	0.003	-0.146
7.128	0.080	0.011	0.003	-0.066
7.208	0.080	0.005	0.002	0.014
7.288	0.080	0.005	0.003	0.094
7.368	0.080	0.003	0.002	0.174
7.448	0.080	0.000	0.013	0.254
7.528	0.080	0.005	0.002	0.334
7.608	0.080	0.004	0.002	0.414
7.688	0.080	0.006	0.002	0.494
7.768	0.080	0.005	0.002	0.574
7.848	0.080	0.006	0.003	0.654
7.928	0.080	0.003	0.002	0.734
8.008	0.080	0.007	0.002	0.814
8.088	0.080	0.000	0.005	0.894
8.168	0.080	0.002	0.002	0.974
8.248	0.080	0.002	0.002	1.054
8.328	0.080	0.004	0.002	1.134
8.408	0.080	0.007	0.002	1.214
8.488	0.080	0.004	0.002	1.294
8.568	0.080	0.003	0.002	1.374
8.648	0.080	0.007	0.002	1.454
8.728	0.080	0.002	0.002	1.534
8.808	0.080	0.006	0.003	1.614
8.888	0.080	0.006	0.002	1.694
8.968	0.080	0.006	0.003	1.774
9.048	0.080	0.001	0.002	1.854
9.128	0.080	0.003	0.002	1.934
9.208	0.080	0.001	0.002	2.014
9.288	0.080	0.007	0.003	2.094
9.368	0.080	0.000	0.005	2.174
9.448	0.080	0.003	0.002	2.254
9.528	0.080	0.001	0.002	2.334
9.608	0.080	0.004	0.002	2.414
9.688	0.080	0.004	0.002	2.494
9.768	0.080	0.002	0.002	2.574
9.848	0.080	0.000	0.000	2.654
9.928	0.080	0.003	0.002	2.734
10.008	0.080	0.004	0.002	2.814
10.088	0.080	0.001	0.002	2.894
10.168	0.080	0.001	0.002	2.974
10.248	0.080	0.001	0.002	3.054
10.328	0.080	0.003	0.002	3.134
10.408	0.080	0.001	0.002	3.214
10.488	0.080	0.002	0.002	3.294
10.568	0.080	0.000	0.007	3.374
10.648	0.080	0.003	0.002	3.454
10.728	0.080	0.003	0.002	3.534
10.808	0.080	0.002	0.002	3.614
10.888	0.080	0.002	0.002	3.694
10.968	0.080	0.000	0.003	3.774
11.048	0.080	0.000	0.043	3.854
11.128	0.080	0.000	0.004	3.934
11.208	0.080	0.004	0.002	4.014
11.288	0.080	0.000	0.001	4.094

Continued on next page

TABLE XVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.000	0.001	4.174
11.448	0.080	0.004	0.002	4.254
11.528	0.080	0.000	0.000	4.334
11.608	0.080	0.002	0.002	4.414
11.688	0.080	0.000	0.000	4.494
11.768	0.080	0.004	0.003	4.574
11.848	0.080	0.000	0.000	4.654
11.928	0.080	0.001	0.002	4.734
12.008	0.080	0.002	0.002	4.814
12.088	0.080	0.000	0.002	4.894
12.168	0.080	0.002	0.002	4.974
12.248	0.080	0.006	0.002	5.054
12.328	0.080	0.001	0.002	5.134
12.408	0.080	0.003	0.002	5.214
12.488	0.080	0.006	0.003	5.294
12.568	0.080	0.000	0.005	5.374
12.648	0.080	0.001	0.002	5.454
12.728	0.080	0.002	0.003	5.534
12.808	0.080	0.001	0.002	5.614
12.888	0.080	0.002	0.002	5.694
12.968	0.080	0.002	0.002	5.774
13.048	0.080	0.008	0.003	5.854
13.128	0.080	0.000	0.000	5.934
13.208	0.080	0.007	0.003	6.014
13.288	0.080	0.002	0.003	6.094
13.368	0.080	0.003	0.003	6.174
13.448	0.080	0.000	0.082	6.254
13.528	0.080	0.005	0.004	6.334
13.608	0.080	0.000	0.010	6.414
13.688	0.080	0.002	0.003	6.494
13.768	0.080	0.000	0.002	6.574
13.848	0.080	0.009	0.004	6.654
13.928	0.080	0.001	0.003	6.734
14.008	0.080	0.005	0.004	6.814
14.088	0.080	0.000	0.020	6.894
14.168	0.080	0.005	0.006	6.974
14.248	0.080	0.000	0.024	7.054
14.328	0.080	0.000	0.001	7.134
14.408	0.080	0.000	0.006	7.214
14.488	0.080	0.000	0.000	7.294
14.568	0.080	0.000	0.000	7.374
14.648	0.080	0.016	0.014	7.454
14.728	0.080	0.021	0.015	7.534
14.808	0.080	0.000	0.000	7.614
14.888	0.080	0.000	0.000	7.694
14.968	0.080	0.000	0.017	7.774
15.048	0.080	0.000	0.026	7.854
15.128	0.080	13.898	3818514.000	7.934
15.208	0.080	0.000	0.052	8.014
15.288	0.080	0.000	0.000	8.094
15.368	0.080	0.000	0.118	8.174
15.448	0.080	0.000	0.646	8.254
15.528	0.080	0.000	0.293	8.334
15.608	0.080	0.000	0.556	8.414
15.688	0.080	0.000	0.790	8.494
15.768	0.080	0.000	1.609	8.574
15.848	0.080	0.000	4.095	8.654
15.928	0.080	0.000	4.095	8.734
16.008	0.080	0.000	22.525	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

9. ^{91}Zr γ-ray 1204.770 keV

^{91}Zr nucleus
γ-ray observed 1204.770 keV
γ-ray originates in initial state at 1204.770 keV and goes to final state at 0.000 keV
Initial state is 1/2+ and final state is 5/2+ transition is type E2
Internal conversion coefficent α is 1.000

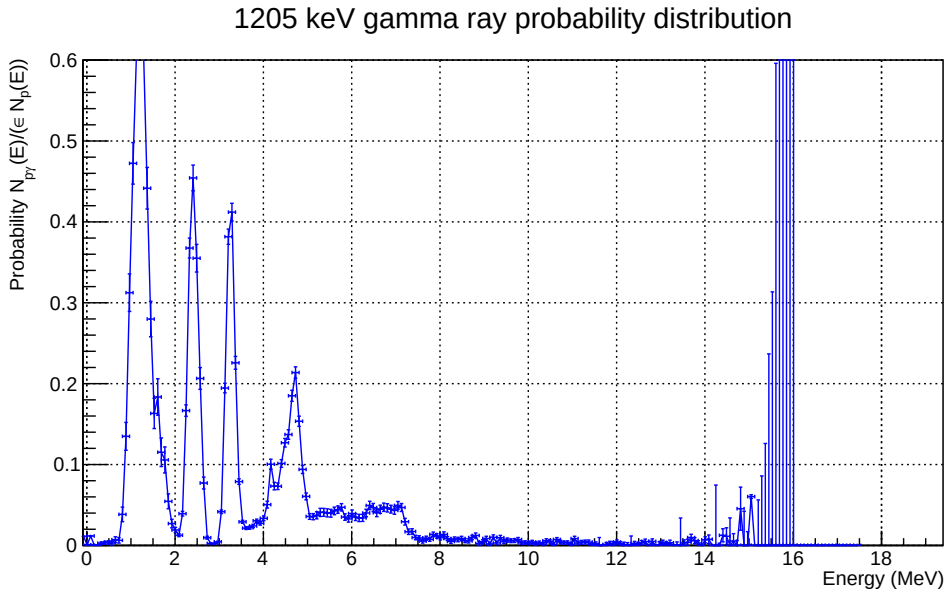

FIG. 36: Gamma ray probability distribution of the 1204.770 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XVIII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 1204.770 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.011	0.000	-7.266
0.008	0.080	0.001	0.001	-7.186
0.088	0.080	0.012	0.000	-7.106
0.168	0.080	0.001	0.000	-7.026
0.248	0.080	0.000	0.000	-6.946
0.328	0.080	0.003	0.001	-6.866
0.408	0.080	0.003	0.002	-6.786
0.488	0.080	0.004	0.001	-6.706
0.568	0.080	0.003	0.003	-6.626
0.648	0.080	0.007	0.004	-6.546
0.728	0.080	0.006	0.003	-6.466
0.808	0.080	0.038	0.009	-6.386
0.888	0.080	0.135	0.017	-6.306
0.968	0.080	0.312	0.023	-6.226
1.048	0.080	0.472	0.026	-6.146
1.128	0.080	0.612	0.027	-6.066
1.208	0.080	0.663	0.025	-5.986
1.288	0.080	0.605	0.026	-5.906
1.368	0.080	0.442	0.026	-5.826
1.448	0.080	0.280	0.022	-5.746
1.528	0.080	0.163	0.019	-5.666

Continued on next page

TABLE XVIII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
1.608	0.080	0.184	0.023	-5.586
1.688	0.080	0.115	0.018	-5.506
1.768	0.080	0.106	0.016	-5.426
1.848	0.080	0.054	0.009	-5.346
1.928	0.080	0.027	0.005	-5.266
2.008	0.080	0.019	0.003	-5.186
2.088	0.080	0.013	0.002	-5.106
2.168	0.080	0.039	0.003	-5.026
2.248	0.080	0.167	0.007	-4.946
2.328	0.080	0.368	0.012	-4.866
2.408	0.080	0.454	0.016	-4.786
2.488	0.080	0.355	0.017	-4.706
2.568	0.080	0.206	0.013	-4.626
2.648	0.080	0.077	0.007	-4.546
2.728	0.080	0.010	0.002	-4.466
2.808	0.080	0.002	0.001	-4.386
2.888	0.080	0.002	0.001	-4.306
2.968	0.080	0.004	0.001	-4.226
3.048	0.080	0.042	0.002	-4.146
3.128	0.080	0.194	0.006	-4.066
3.208	0.080	0.382	0.009	-3.986
3.288	0.080	0.412	0.011	-3.906
3.368	0.080	0.226	0.008	-3.826
3.448	0.080	0.079	0.003	-3.746
3.528	0.080	0.029	0.002	-3.666
3.608	0.080	0.021	0.002	-3.586
3.688	0.080	0.022	0.002	-3.506
3.768	0.080	0.024	0.002	-3.426
3.848	0.080	0.031	0.002	-3.346
3.928	0.080	0.027	0.002	-3.266
4.008	0.080	0.034	0.003	-3.186
4.088	0.080	0.051	0.004	-3.106
4.168	0.080	0.100	0.006	-3.026
4.248	0.080	0.073	0.005	-2.946
4.328	0.080	0.073	0.004	-2.866
4.408	0.080	0.101	0.005	-2.786
4.488	0.080	0.127	0.005	-2.706
4.568	0.080	0.137	0.006	-2.626
4.648	0.080	0.185	0.007	-2.546
4.728	0.080	0.214	0.007	-2.466
4.808	0.080	0.154	0.006	-2.386
4.888	0.080	0.094	0.005	-2.306
4.968	0.080	0.061	0.004	-2.226
5.048	0.080	0.036	0.004	-2.146
5.128	0.080	0.036	0.004	-2.066
5.208	0.080	0.037	0.004	-1.986
5.288	0.080	0.041	0.005	-1.906
5.368	0.080	0.041	0.005	-1.826
5.448	0.080	0.040	0.005	-1.746
5.528	0.080	0.040	0.005	-1.666
5.608	0.080	0.043	0.005	-1.586
5.688	0.080	0.044	0.005	-1.506
5.768	0.080	0.047	0.004	-1.426
5.848	0.080	0.035	0.004	-1.346
5.928	0.080	0.033	0.004	-1.266
6.008	0.080	0.039	0.004	-1.186
6.088	0.080	0.035	0.004	-1.106
6.168	0.080	0.034	0.004	-1.026
6.248	0.080	0.034	0.004	-0.946
6.328	0.080	0.040	0.005	-0.866
6.408	0.080	0.049	0.005	-0.786

Continued on next page

TABLE XVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.047	0.005	-0.706
6.568	0.080	0.040	0.005	-0.626
6.648	0.080	0.045	0.005	-0.546
6.728	0.080	0.047	0.005	-0.466
6.808	0.080	0.046	0.005	-0.386
6.888	0.080	0.045	0.005	-0.306
6.968	0.080	0.043	0.005	-0.226
7.048	0.080	0.049	0.005	-0.146
7.128	0.080	0.047	0.005	-0.066
7.208	0.080	0.029	0.004	0.014
7.288	0.080	0.017	0.003	0.094
7.368	0.080	0.017	0.003	0.174
7.448	0.080	0.010	0.003	0.254
7.528	0.080	0.009	0.003	0.334
7.608	0.080	0.005	0.002	0.414
7.688	0.080	0.009	0.002	0.494
7.768	0.080	0.007	0.002	0.574
7.848	0.080	0.014	0.003	0.654
7.928	0.080	0.012	0.003	0.734
8.008	0.080	0.009	0.003	0.814
8.088	0.080	0.014	0.003	0.894
8.168	0.080	0.009	0.002	0.974
8.248	0.080	0.005	0.002	1.054
8.328	0.080	0.008	0.003	1.134
8.408	0.080	0.007	0.003	1.214
8.488	0.080	0.009	0.003	1.294
8.568	0.080	0.006	0.003	1.374
8.648	0.080	0.006	0.002	1.454
8.728	0.080	0.010	0.003	1.534
8.808	0.080	0.012	0.003	1.614
8.888	0.080	0.002	0.002	1.694
8.968	0.080	0.005	0.002	1.774
9.048	0.080	0.009	0.003	1.854
9.128	0.080	0.002	0.002	1.934
9.208	0.080	0.010	0.003	2.014
9.288	0.080	0.003	0.002	2.094
9.368	0.080	0.010	0.003	2.174
9.448	0.080	0.005	0.002	2.254
9.528	0.080	0.007	0.002	2.334
9.608	0.080	0.006	0.002	2.414
9.688	0.080	0.006	0.002	2.494
9.768	0.080	0.007	0.003	2.574
9.848	0.080	0.003	0.002	2.654
9.928	0.080	0.004	0.002	2.734
10.008	0.080	0.003	0.002	2.814
10.088	0.080	0.004	0.002	2.894
10.168	0.080	0.002	0.002	2.974
10.248	0.080	0.004	0.002	3.054
10.328	0.080	0.002	0.002	3.134
10.408	0.080	0.006	0.002	3.214
10.488	0.080	0.005	0.002	3.294
10.568	0.080	0.001	0.002	3.374
10.648	0.080	0.007	0.002	3.454
10.728	0.080	0.004	0.002	3.534
10.808	0.080	0.003	0.002	3.614
10.888	0.080	0.004	0.002	3.694
10.968	0.080	0.001	0.002	3.774
11.048	0.080	0.008	0.003	3.854
11.128	0.080	0.003	0.002	3.934
11.208	0.080	0.004	0.002	4.014
11.288	0.080	0.004	0.002	4.094

Continued on next page

TABLE XVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.004	0.002	4.174
11.448	0.080	0.001	0.002	4.254
11.528	0.080	0.002	0.002	4.334
11.608	0.080	0.000	0.010	4.414
11.688	0.080	0.000	0.000	4.494
11.768	0.080	0.001	0.002	4.574
11.848	0.080	0.003	0.002	4.654
11.928	0.080	0.002	0.003	4.734
12.008	0.080	0.004	0.002	4.814
12.088	0.080	0.002	0.002	4.894
12.168	0.080	0.000	0.004	4.974
12.248	0.080	0.001	0.002	5.054
12.328	0.080	0.000	0.012	5.134
12.408	0.080	0.003	0.002	5.214
12.488	0.080	0.001	0.002	5.294
12.568	0.080	0.003	0.003	5.374
12.648	0.080	0.005	0.003	5.454
12.728	0.080	0.000	0.000	5.534
12.808	0.080	0.005	0.003	5.614
12.888	0.080	0.000	0.000	5.694
12.968	0.080	0.000	0.004	5.774
13.048	0.080	0.004	0.003	5.854
13.128	0.080	0.001	0.003	5.934
13.208	0.080	0.003	0.003	6.014
13.288	0.080	0.000	0.000	6.094
13.368	0.080	0.001	0.004	6.174
13.448	0.080	0.000	0.034	6.254
13.528	0.080	0.003	0.004	6.334
13.608	0.080	0.004	0.004	6.414
13.688	0.080	0.010	0.004	6.494
13.768	0.080	0.006	0.004	6.574
13.848	0.080	0.003	0.003	6.654
13.928	0.080	0.000	0.000	6.734
14.008	0.080	0.007	0.004	6.814
14.088	0.080	0.008	0.005	6.894
14.168	0.080	0.000	0.000	6.974
14.248	0.080	0.000	0.075	7.054
14.328	0.080	0.000	0.003	7.134
14.408	0.080	0.013	0.008	7.214
14.488	0.080	0.011	0.010	7.294
14.568	0.080	0.000	0.034	7.374
14.648	0.080	0.005	0.009	7.454
14.728	0.080	0.000	0.006	7.534
14.808	0.080	0.045	0.027	7.614
14.888	0.080	0.000	0.042	7.694
14.968	0.080	0.000	0.017	7.774
15.048	0.080	0.060	0.002	7.854
15.128	0.080	0.000	0.000	7.934
15.208	0.080	0.000	0.056	8.014
15.288	0.080	0.000	0.086	8.094
15.368	0.080	0.000	0.126	8.174
15.448	0.080	0.000	0.237	8.254
15.528	0.080	0.000	0.313	8.334
15.608	0.080	0.000	0.596	8.414
15.688	0.080	0.000	0.847	8.494
15.768	0.080	0.000	1.724	8.574
15.848	0.080	0.000	4.389	8.654
15.928	0.080	0.000	4.389	8.734
16.008	0.080	0.000	24.137	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

10. ^{91}Zr γ-ray 2131.490 keV

^{91}Zr nucleus
γ-ray observed 2131.490 keV
γ-ray originates in initial state at 2131.490 keV and goes to final state at 0.000 keV
Initial state is (9/2)+ and final state is 5/2+ transition is type E2
Internal conversion coefficent α is 1.000

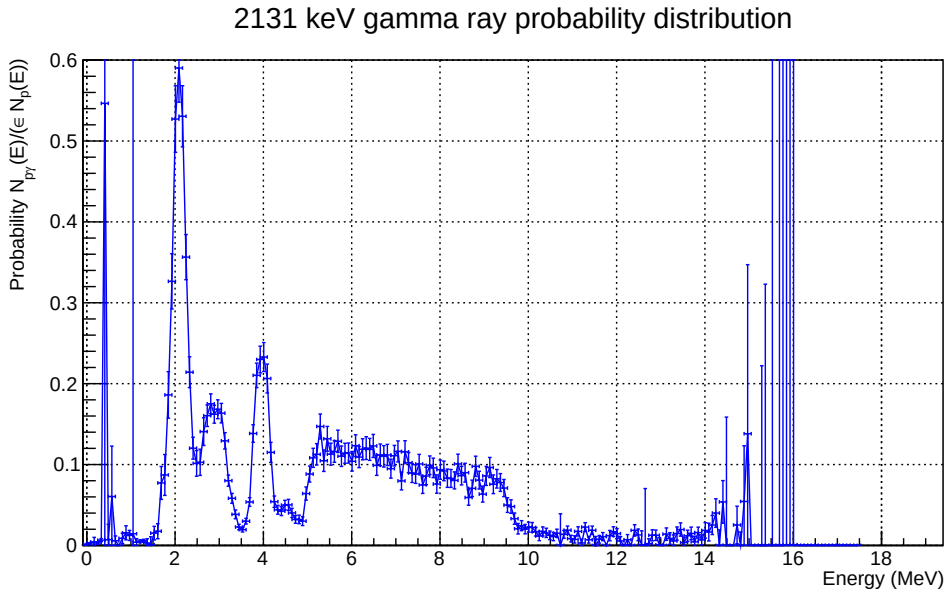

FIG. 37: Gamma ray probability distribution of the 2131.490 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XIX: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2131.490 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.001	0.000	-7.266
0.008	0.080	0.002	0.001	-7.186
0.088	0.080	0.003	0.000	-7.106
0.168	0.080	0.004	0.006	-7.026
0.248	0.080	0.003	0.002	-6.946
0.328	0.080	0.007	0.002	-6.866
0.408	0.080	0.547	759022.812	-6.786
0.488	0.080	0.007	0.019	-6.706
0.568	0.080	0.060	0.062	-6.626
0.648	0.080	0.006	0.006	-6.546
0.728	0.080	0.000	0.000	-6.466
0.808	0.080	0.009	0.006	-6.386
0.888	0.080	0.016	0.009	-6.306
0.968	0.080	0.012	0.006	-6.226
1.048	0.080	0.014	157821.703	-6.146
1.128	0.080	0.004	0.004	-6.066
1.208	0.080	0.005	0.002	-5.986
1.288	0.080	0.006	0.002	-5.906
1.368	0.080	0.003	0.005	-5.826
1.448	0.080	0.001	0.010	-5.746
1.528	0.080	0.015	0.008	-5.666

Continued on next page

TABLE XIX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.018	0.009	-5.586
1.688	0.080	0.077	0.020	-5.506
1.768	0.080	0.087	0.025	-5.426
1.848	0.080	0.186	0.029	-5.346
1.928	0.080	0.326	0.034	-5.266
2.008	0.080	0.527	0.041	-5.186
2.088	0.080	0.590	0.042	-5.106
2.168	0.080	0.530	0.038	-5.026
2.248	0.080	0.356	0.028	-4.946
2.328	0.080	0.214	0.019	-4.866
2.408	0.080	0.120	0.014	-4.786
2.488	0.080	0.101	0.016	-4.706
2.568	0.080	0.103	0.016	-4.626
2.648	0.080	0.141	0.017	-4.546
2.728	0.080	0.160	0.013	-4.466
2.808	0.080	0.175	0.012	-4.386
2.888	0.080	0.162	0.011	-4.306
2.968	0.080	0.168	0.012	-4.226
3.048	0.080	0.164	0.012	-4.146
3.128	0.080	0.129	0.010	-4.066
3.208	0.080	0.080	0.007	-3.986
3.288	0.080	0.058	0.006	-3.906
3.368	0.080	0.038	0.005	-3.826
3.448	0.080	0.023	0.003	-3.746
3.528	0.080	0.020	0.003	-3.666
3.608	0.080	0.030	0.004	-3.586
3.688	0.080	0.054	0.005	-3.506
3.768	0.080	0.138	0.011	-3.426
3.848	0.080	0.210	0.015	-3.346
3.928	0.080	0.230	0.017	-3.266
4.008	0.080	0.233	0.018	-3.186
4.088	0.080	0.206	0.018	-3.106
4.168	0.080	0.115	0.012	-3.026
4.248	0.080	0.054	0.007	-2.946
4.328	0.080	0.044	0.005	-2.866
4.408	0.080	0.042	0.005	-2.786
4.488	0.080	0.050	0.006	-2.706
4.568	0.080	0.050	0.007	-2.626
4.648	0.080	0.040	0.006	-2.546
4.728	0.080	0.032	0.005	-2.466
4.808	0.080	0.032	0.005	-2.386
4.888	0.080	0.030	0.005	-2.306
4.968	0.080	0.064	0.008	-2.226
5.048	0.080	0.088	0.010	-2.146
5.128	0.080	0.108	0.012	-2.066
5.208	0.080	0.113	0.013	-1.986
5.288	0.080	0.147	0.015	-1.906
5.368	0.080	0.105	0.013	-1.826
5.448	0.080	0.132	0.015	-1.746
5.528	0.080	0.113	0.014	-1.666
5.608	0.080	0.116	0.013	-1.586
5.688	0.080	0.129	0.014	-1.506
5.768	0.080	0.110	0.013	-1.426
5.848	0.080	0.114	0.012	-1.346
5.928	0.080	0.114	0.012	-1.266
6.008	0.080	0.104	0.012	-1.186
6.088	0.080	0.123	0.013	-1.106
6.168	0.080	0.109	0.013	-1.026
6.248	0.080	0.119	0.013	-0.946
6.328	0.080	0.120	0.014	-0.866
6.408	0.080	0.119	0.014	-0.786

Continued on next page

TABLE XIX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.123	0.014	-0.706
6.568	0.080	0.099	0.012	-0.626
6.648	0.080	0.112	0.013	-0.546
6.728	0.080	0.110	0.013	-0.466
6.808	0.080	0.112	0.013	-0.386
6.888	0.080	0.095	0.012	-0.306
6.968	0.080	0.111	0.013	-0.226
7.048	0.080	0.116	0.013	-0.146
7.128	0.080	0.080	0.011	-0.066
7.208	0.080	0.116	0.014	0.014
7.288	0.080	0.102	0.013	0.094
7.368	0.080	0.090	0.012	0.174
7.448	0.080	0.088	0.012	0.254
7.528	0.080	0.101	0.012	0.334
7.608	0.080	0.075	0.010	0.414
7.688	0.080	0.086	0.011	0.494
7.768	0.080	0.099	0.012	0.574
7.848	0.080	0.096	0.012	0.654
7.928	0.080	0.076	0.011	0.734
8.008	0.080	0.094	0.012	0.814
8.088	0.080	0.092	0.012	0.894
8.168	0.080	0.083	0.011	0.974
8.248	0.080	0.083	0.011	1.054
8.328	0.080	0.080	0.011	1.134
8.408	0.080	0.101	0.012	1.214
8.488	0.080	0.086	0.011	1.294
8.568	0.080	0.090	0.012	1.374
8.648	0.080	0.059	0.010	1.454
8.728	0.080	0.071	0.010	1.534
8.808	0.080	0.098	0.013	1.614
8.888	0.080	0.081	0.011	1.694
8.968	0.080	0.064	0.010	1.774
9.048	0.080	0.086	0.012	1.854
9.128	0.080	0.096	0.012	1.934
9.208	0.080	0.076	0.012	2.014
9.288	0.080	0.082	0.011	2.094
9.368	0.080	0.078	0.011	2.174
9.448	0.080	0.071	0.011	2.254
9.528	0.080	0.050	0.009	2.334
9.608	0.080	0.048	0.008	2.414
9.688	0.080	0.033	0.007	2.494
9.768	0.080	0.021	0.006	2.574
9.848	0.080	0.024	0.006	2.654
9.928	0.080	0.020	0.006	2.734
10.008	0.080	0.023	0.006	2.814
10.088	0.080	0.022	0.006	2.894
10.168	0.080	0.017	0.005	2.974
10.248	0.080	0.012	0.006	3.054
10.328	0.080	0.017	0.006	3.134
10.408	0.080	0.015	0.006	3.214
10.488	0.080	0.013	0.005	3.294
10.568	0.080	0.011	0.005	3.374
10.648	0.080	0.015	0.005	3.454
10.728	0.080	0.000	0.039	3.534
10.808	0.080	0.014	0.005	3.614
10.888	0.080	0.019	0.005	3.694
10.968	0.080	0.008	0.004	3.774
11.048	0.080	0.007	0.004	3.854
11.128	0.080	0.017	0.006	3.934
11.208	0.080	0.003	0.005	4.014
11.288	0.080	0.023	0.006	4.094

Continued on next page

TABLE XIX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
11.368	0.080	0.007	0.004	4.174
11.448	0.080	0.019	0.005	4.254
11.528	0.080	0.000	0.011	4.334
11.608	0.080	0.008	0.005	4.414
11.688	0.080	0.011	0.005	4.494
11.768	0.080	0.000	0.000	4.574
11.848	0.080	0.012	0.006	4.654
11.928	0.080	0.017	0.006	4.734
12.008	0.080	0.015	0.006	4.814
12.088	0.080	0.006	0.005	4.894
12.168	0.080	0.000	0.000	4.974
12.248	0.080	0.007	0.006	5.054
12.328	0.080	0.000	0.000	5.134
12.408	0.080	0.019	0.007	5.214
12.488	0.080	0.013	0.007	5.294
12.568	0.080	0.001	0.018	5.374
12.648	0.080	0.000	0.070	5.454
12.728	0.080	0.002	0.006	5.534
12.808	0.080	0.013	0.007	5.614
12.888	0.080	0.013	0.006	5.694
12.968	0.080	0.001	0.009	5.774
13.048	0.080	0.000	0.000	5.854
13.128	0.080	0.014	0.008	5.934
13.208	0.080	0.009	0.007	6.014
13.288	0.080	0.005	0.007	6.094
13.368	0.080	0.015	0.008	6.174
13.448	0.080	0.020	0.008	6.254
13.528	0.080	0.004	0.006	6.334
13.608	0.080	0.012	0.007	6.414
13.688	0.080	0.015	0.008	6.494
13.768	0.080	0.004	0.007	6.574
13.848	0.080	0.016	0.007	6.654
13.928	0.080	0.007	0.006	6.734
14.008	0.080	0.019	0.010	6.814
14.088	0.080	0.016	0.011	6.894
14.168	0.080	0.025	0.012	6.974
14.248	0.080	0.040	0.018	7.054
14.328	0.080	0.000	0.019	7.134
14.408	0.080	0.054	0.026	7.214
14.488	0.080	0.000	0.159	7.294
14.568	0.080	0.000	0.000	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.025	0.023	7.534
14.808	0.080	0.000	0.017	7.614
14.888	0.080	0.054	0.069	7.694
14.968	0.080	0.138	0.209	7.774
15.048	0.080	0.000	0.000	7.854
15.128	0.080	0.000	0.000	7.934
15.208	0.080	0.000	0.000	8.014
15.288	0.080	0.000	0.222	8.094
15.368	0.080	0.000	0.323	8.174
15.448	0.080	0.000	0.000	8.254
15.528	0.080	0.000	0.803	8.334
15.608	0.080	0.000	0.000	8.414
15.688	0.080	0.000	2.170	8.494
15.768	0.080	0.000	3.556	8.574
15.848	0.080	0.000	11.246	8.654
15.928	0.080	0.000	11.246	8.734
16.008	0.080	0.001	61.851	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XIX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

11. ^{91}Zr γ-ray 2170.150 keV

^{91}Zr nucleus
γ-ray observed 2170.150 keV
γ-ray originates in initial state at 2170.150 keV and goes to final state at 0.000 keV
Initial state is (11/2)- and final state is 5/2+ transition is type E3
Internal conversion coefficent α is 1.000

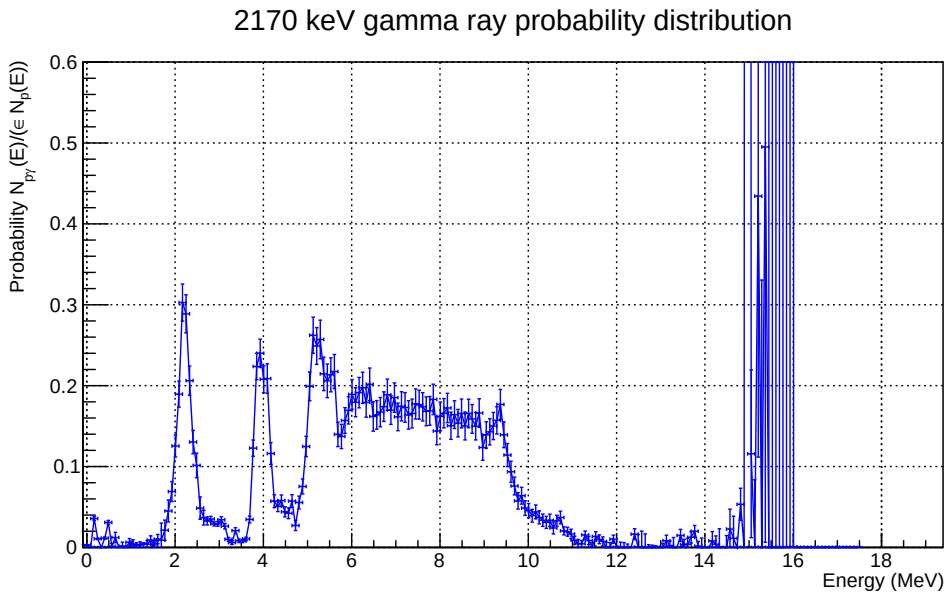

FIG. 38: Gamma ray probability distribution of the 2170.150 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XX: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2170.150 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.003	0.000	-7.266
0.008	0.080	0.003	0.000	-7.186
0.088	0.080	0.000	0.001	-7.106
0.168	0.080	0.036	0.002	-7.026
0.248	0.080	0.011	0.001	-6.946
0.328	0.080	0.000	0.000	-6.866
0.408	0.080	0.012	0.001	-6.786
0.488	0.080	0.031	0.002	-6.706
0.568	0.080	0.001	0.003	-6.626
0.648	0.080	0.012	0.006	-6.546
0.728	0.080	0.000	0.000	-6.466
0.808	0.080	0.002	0.005	-6.386
0.888	0.080	0.000	0.000	-6.306
0.968	0.080	0.006	0.005	-6.226
1.048	0.080	0.004	0.005	-6.146
1.128	0.080	0.002	0.003	-6.066
1.208	0.080	0.003	0.004	-5.986
1.288	0.080	0.005	0.001	-5.906
1.368	0.080	0.004	0.005	-5.826
1.448	0.080	0.009	0.005	-5.746
1.528	0.080	0.003	0.005	-5.666

Continued on next page

TABLE XX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.010	0.006	-5.586
1.688	0.080	0.009	0.021	-5.506
1.768	0.080	0.021	0.012	-5.426
1.848	0.080	0.045	0.014	-5.346
1.928	0.080	0.069	0.012	-5.266
2.008	0.080	0.125	0.014	-5.186
2.088	0.080	0.190	0.016	-5.106
2.168	0.080	0.303	0.023	-5.026
2.248	0.080	0.289	0.023	-4.946
2.328	0.080	0.206	0.018	-4.866
2.408	0.080	0.130	0.014	-4.786
2.488	0.080	0.101	0.015	-4.706
2.568	0.080	0.049	0.014	-4.626
2.648	0.080	0.037	0.009	-4.546
2.728	0.080	0.033	0.005	-4.466
2.808	0.080	0.035	0.003	-4.386
2.888	0.080	0.029	0.003	-4.306
2.968	0.080	0.029	0.003	-4.226
3.048	0.080	0.034	0.004	-4.146
3.128	0.080	0.026	0.003	-4.066
3.208	0.080	0.010	0.002	-3.986
3.288	0.080	0.006	0.002	-3.906
3.368	0.080	0.021	0.004	-3.826
3.448	0.080	0.008	0.002	-3.746
3.528	0.080	0.008	0.002	-3.666
3.608	0.080	0.011	0.002	-3.586
3.688	0.080	0.035	0.004	-3.506
3.768	0.080	0.123	0.010	-3.426
3.848	0.080	0.224	0.016	-3.346
3.928	0.080	0.240	0.017	-3.266
4.008	0.080	0.208	0.017	-3.186
4.088	0.080	0.209	0.018	-3.106
4.168	0.080	0.116	0.014	-3.026
4.248	0.080	0.057	0.008	-2.946
4.328	0.080	0.051	0.006	-2.866
4.408	0.080	0.058	0.007	-2.786
4.488	0.080	0.044	0.006	-2.706
4.568	0.080	0.042	0.007	-2.626
4.648	0.080	0.057	0.008	-2.546
4.728	0.080	0.027	0.006	-2.466
4.808	0.080	0.056	0.008	-2.386
4.888	0.080	0.075	0.009	-2.306
4.968	0.080	0.125	0.013	-2.226
5.048	0.080	0.199	0.018	-2.146
5.128	0.080	0.262	0.022	-2.066
5.208	0.080	0.249	0.023	-1.986
5.288	0.080	0.257	0.024	-1.906
5.368	0.080	0.215	0.021	-1.826
5.448	0.080	0.206	0.021	-1.746
5.528	0.080	0.213	0.021	-1.666
5.608	0.080	0.217	0.021	-1.586
5.688	0.080	0.140	0.015	-1.506
5.768	0.080	0.137	0.015	-1.426
5.848	0.080	0.157	0.016	-1.346
5.928	0.080	0.169	0.017	-1.266
6.008	0.080	0.189	0.018	-1.186
6.088	0.080	0.179	0.018	-1.106
6.168	0.080	0.191	0.019	-1.026
6.248	0.080	0.197	0.019	-0.946
6.328	0.080	0.179	0.018	-0.866
6.408	0.080	0.202	0.020	-0.786

Continued on next page

TABLE XX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.162	0.018	-0.706
6.568	0.080	0.164	0.018	-0.626
6.648	0.080	0.167	0.018	-0.546
6.728	0.080	0.174	0.018	-0.466
6.808	0.080	0.189	0.019	-0.386
6.888	0.080	0.170	0.018	-0.306
6.968	0.080	0.185	0.018	-0.226
7.048	0.080	0.161	0.017	-0.146
7.128	0.080	0.174	0.018	-0.066
7.208	0.080	0.173	0.018	0.014
7.288	0.080	0.164	0.018	0.094
7.368	0.080	0.166	0.018	0.174
7.448	0.080	0.177	0.019	0.254
7.528	0.080	0.176	0.018	0.334
7.608	0.080	0.174	0.017	0.414
7.688	0.080	0.168	0.018	0.494
7.768	0.080	0.169	0.018	0.574
7.848	0.080	0.183	0.019	0.654
7.928	0.080	0.144	0.017	0.734
8.008	0.080	0.162	0.018	0.814
8.088	0.080	0.166	0.018	0.894
8.168	0.080	0.172	0.018	0.974
8.248	0.080	0.150	0.017	1.054
8.328	0.080	0.164	0.017	1.134
8.408	0.080	0.154	0.017	1.214
8.488	0.080	0.166	0.018	1.294
8.568	0.080	0.150	0.017	1.374
8.648	0.080	0.166	0.018	1.454
8.728	0.080	0.159	0.018	1.534
8.808	0.080	0.150	0.017	1.614
8.888	0.080	0.166	0.018	1.694
8.968	0.080	0.123	0.016	1.774
9.048	0.080	0.139	0.016	1.854
9.128	0.080	0.143	0.016	1.934
9.208	0.080	0.150	0.017	2.014
9.288	0.080	0.157	0.017	2.094
9.368	0.080	0.177	0.018	2.174
9.448	0.080	0.139	0.016	2.254
9.528	0.080	0.114	0.014	2.334
9.608	0.080	0.094	0.013	2.414
9.688	0.080	0.076	0.011	2.494
9.768	0.080	0.058	0.010	2.574
9.848	0.080	0.064	0.010	2.654
9.928	0.080	0.049	0.009	2.734
10.008	0.080	0.045	0.009	2.814
10.088	0.080	0.039	0.008	2.894
10.168	0.080	0.044	0.009	2.974
10.248	0.080	0.037	0.008	3.054
10.328	0.080	0.034	0.008	3.134
10.408	0.080	0.031	0.007	3.214
10.488	0.080	0.034	0.008	3.294
10.568	0.080	0.024	0.007	3.374
10.648	0.080	0.033	0.007	3.454
10.728	0.080	0.037	0.008	3.534
10.808	0.080	0.020	0.005	3.614
10.888	0.080	0.019	0.005	3.694
10.968	0.080	0.017	0.006	3.774
11.048	0.080	0.009	0.005	3.854
11.128	0.080	0.005	0.005	3.934
11.208	0.080	0.004	0.004	4.014
11.288	0.080	0.015	0.005	4.094

Continued on next page

TABLE XX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
11.368	0.080	0.009	0.005	4.174
11.448	0.080	0.001	0.005	4.254
11.528	0.080	0.014	0.006	4.334
11.608	0.080	0.010	0.005	4.414
11.688	0.080	0.007	0.006	4.494
11.768	0.080	0.000	0.006	4.574
11.848	0.080	0.000	0.006	4.654
11.928	0.080	0.010	0.005	4.734
12.008	0.080	0.000	0.002	4.814
12.088	0.080	0.000	0.007	4.894
12.168	0.080	0.000	0.006	4.974
12.248	0.080	0.000	0.004	5.054
12.328	0.080	0.000	0.000	5.134
12.408	0.080	0.016	0.007	5.214
12.488	0.080	0.000	0.016	5.294
12.568	0.080	0.000	0.020	5.374
12.648	0.080	0.000	0.017	5.454
12.728	0.080	0.000	0.003	5.534
12.808	0.080	0.000	0.003	5.614
12.888	0.080	0.000	0.002	5.694
12.968	0.080	0.000	0.000	5.774
13.048	0.080	0.000	0.005	5.854
13.128	0.080	0.008	0.007	5.934
13.208	0.080	0.002	0.006	6.014
13.288	0.080	0.000	0.012	6.094
13.368	0.080	0.000	0.000	6.174
13.448	0.080	0.015	0.008	6.254
13.528	0.080	0.003	0.007	6.334
13.608	0.080	0.004	0.007	6.414
13.688	0.080	0.013	0.007	6.494
13.768	0.080	0.020	0.007	6.574
13.848	0.080	0.002	0.006	6.654
13.928	0.080	0.000	0.012	6.734
14.008	0.080	0.000	0.000	6.814
14.088	0.080	0.000	0.000	6.894
14.168	0.080	0.008	0.012	6.974
14.248	0.080	0.004	0.010	7.054
14.328	0.080	0.000	0.023	7.134
14.408	0.080	0.000	0.000	7.214
14.488	0.080	0.000	0.015	7.294
14.568	0.080	0.023	0.025	7.374
14.648	0.080	0.011	0.027	7.454
14.728	0.080	0.000	0.000	7.534
14.808	0.080	0.053	0.020	7.614
14.888	0.080	0.000	0.000	7.694
14.968	0.080	10.506	1.753	7.774
15.048	0.080	0.116	0.104	7.854
15.128	0.080	0.000	0.083	7.934
15.208	0.080	0.434	0.323	8.014
15.288	0.080	0.000	0.331	8.094
15.368	0.080	0.495	0.489	8.174
15.448	0.080	0.000	0.911	8.254
15.528	0.080	0.000	1.196	8.334
15.608	0.080	0.000	2.273	8.414
15.688	0.080	0.000	3.230	8.494
15.768	0.080	0.000	6.576	8.574
15.848	0.080	0.000	16.738	8.654
15.928	0.080	0.000	16.738	8.734
16.008	0.080	0.001	92.058	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

12. ^{91}Zr γ-ray 2200.500 keV

^{91}Zr nucleus
γ-ray observed 2200.500 keV
γ-ray originates in initial state at 2200.500 keV and goes to final state at 0.000 keV
Initial state is 7/2+ and final state is 5/2+ transition is type M1
Internal conversion coefficent α is 1.000

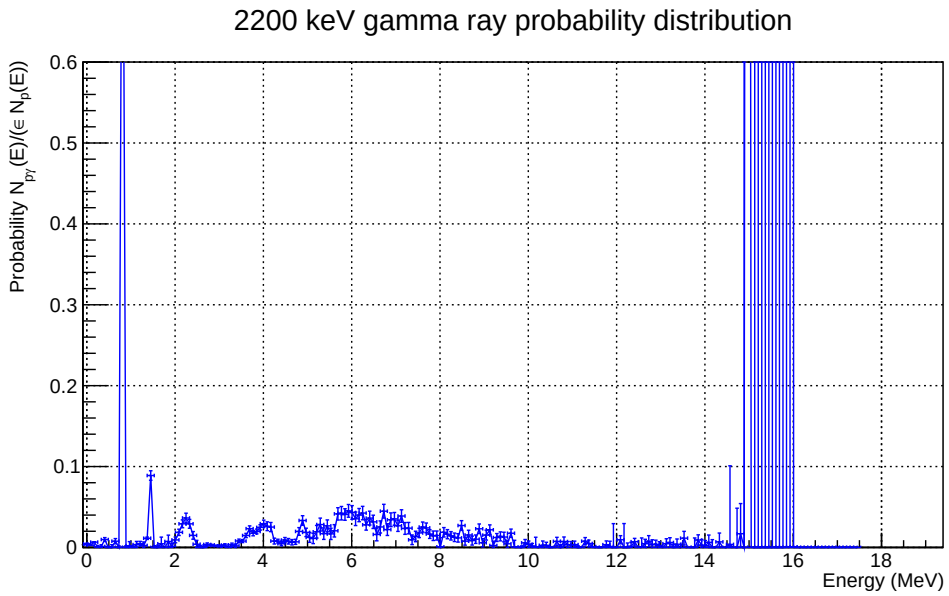

FIG. 39: Gamma ray probability distribution of the 2200.500 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXI: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2200.500 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.004	0.000	-7.266
0.008	0.080	0.004	0.001	-7.186
0.088	0.080	0.003	0.000	-7.106
0.168	0.080	0.007	0.001	-7.026
0.248	0.080	0.000	0.002	-6.946
0.328	0.080	0.001	0.002	-6.866
0.408	0.080	0.010	0.002	-6.786
0.488	0.080	0.000	0.001	-6.706
0.568	0.080	0.000	0.003	-6.626
0.648	0.080	0.008	0.003	-6.546
0.728	0.080	0.000	0.002	-6.466
0.808	0.080	1.021	1262445.500	-6.386
0.888	0.080	0.000	0.002	-6.306
0.968	0.080	0.002	0.005	-6.226
1.048	0.080	0.000	0.000	-6.146
1.128	0.080	0.004	0.004	-6.066
1.208	0.080	0.005	0.003	-5.986
1.288	0.080	0.002	0.004	-5.906
1.368	0.080	0.011	0.001	-5.826
1.448	0.080	0.089	0.006	-5.746
1.528	0.080	0.000	0.002	-5.666

Continued on next page

TABLE XXI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.003	-5.586
1.688	0.080	0.004	0.008	-5.506
1.768	0.080	0.000	0.000	-5.426
1.848	0.080	0.007	0.008	-5.346
1.928	0.080	0.001	0.004	-5.266
2.008	0.080	0.009	0.004	-5.186
2.088	0.080	0.019	0.004	-5.106
2.168	0.080	0.029	0.005	-5.026
2.248	0.080	0.036	0.006	-4.946
2.328	0.080	0.029	0.005	-4.866
2.408	0.080	0.015	0.005	-4.786
2.488	0.080	0.004	0.005	-4.706
2.568	0.080	0.000	0.002	-4.626
2.648	0.080	0.000	0.003	-4.546
2.728	0.080	0.004	0.002	-4.466
2.808	0.080	0.003	0.001	-4.386
2.888	0.080	0.002	0.001	-4.306
2.968	0.080	0.002	0.001	-4.226
3.048	0.080	0.002	0.001	-4.146
3.128	0.080	0.003	0.002	-4.066
3.208	0.080	0.000	0.000	-3.986
3.288	0.080	0.003	0.002	-3.906
3.368	0.080	0.002	0.002	-3.826
3.448	0.080	0.008	0.002	-3.746
3.528	0.080	0.008	0.002	-3.666
3.608	0.080	0.015	0.003	-3.586
3.688	0.080	0.023	0.003	-3.506
3.768	0.080	0.018	0.003	-3.426
3.848	0.080	0.020	0.003	-3.346
3.928	0.080	0.025	0.003	-3.266
4.008	0.080	0.029	0.004	-3.186
4.088	0.080	0.026	0.005	-3.106
4.168	0.080	0.025	0.006	-3.026
4.248	0.080	0.008	0.004	-2.946
4.328	0.080	0.008	0.002	-2.866
4.408	0.080	0.004	0.002	-2.786
4.488	0.080	0.009	0.003	-2.706
4.568	0.080	0.008	0.003	-2.626
4.648	0.080	0.006	0.003	-2.546
4.728	0.080	0.007	0.003	-2.466
4.808	0.080	0.020	0.005	-2.386
4.888	0.080	0.033	0.006	-2.306
4.968	0.080	0.019	0.005	-2.226
5.048	0.080	0.012	0.006	-2.146
5.128	0.080	0.011	0.006	-2.066
5.208	0.080	0.019	0.008	-1.986
5.288	0.080	0.028	0.008	-1.906
5.368	0.080	0.017	0.007	-1.826
5.448	0.080	0.027	0.007	-1.746
5.528	0.080	0.017	0.007	-1.666
5.608	0.080	0.021	0.008	-1.586
5.688	0.080	0.041	0.008	-1.506
5.768	0.080	0.042	0.008	-1.426
5.848	0.080	0.041	0.007	-1.346
5.928	0.080	0.045	0.008	-1.266
6.008	0.080	0.043	0.008	-1.186
6.088	0.080	0.035	0.008	-1.106
6.168	0.080	0.040	0.008	-1.026
6.248	0.080	0.043	0.008	-0.946
6.328	0.080	0.028	0.007	-0.866
6.408	0.080	0.036	0.009	-0.786

Continued on next page

TABLE XXI – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.032	0.008	-0.706
6.568	0.080	0.016	0.008	-0.626
6.648	0.080	0.025	0.007	-0.546
6.728	0.080	0.045	0.009	-0.466
6.808	0.080	0.022	0.007	-0.386
6.888	0.080	0.034	0.008	-0.306
6.968	0.080	0.035	0.008	-0.226
7.048	0.080	0.027	0.007	-0.146
7.128	0.080	0.039	0.008	-0.066
7.208	0.080	0.023	0.007	0.014
7.288	0.080	0.024	0.007	0.094
7.368	0.080	0.009	0.006	0.174
7.448	0.080	0.014	0.006	0.254
7.528	0.080	0.018	0.006	0.334
7.608	0.080	0.025	0.006	0.414
7.688	0.080	0.024	0.006	0.494
7.768	0.080	0.017	0.005	0.574
7.848	0.080	0.014	0.006	0.654
7.928	0.080	0.015	0.006	0.734
8.008	0.080	0.001	0.011	0.814
8.088	0.080	0.019	0.006	0.894
8.168	0.080	0.016	0.006	0.974
8.248	0.080	0.014	0.005	1.054
8.328	0.080	0.013	0.005	1.134
8.408	0.080	0.012	0.005	1.214
8.488	0.080	0.027	0.006	1.294
8.568	0.080	0.008	0.005	1.374
8.648	0.080	0.015	0.006	1.454
8.728	0.080	0.009	0.006	1.534
8.808	0.080	0.010	0.005	1.614
8.888	0.080	0.023	0.006	1.694
8.968	0.080	0.006	0.005	1.774
9.048	0.080	0.015	0.006	1.854
9.128	0.080	0.022	0.006	1.934
9.208	0.080	0.002	0.005	2.014
9.288	0.080	0.012	0.005	2.094
9.368	0.080	0.014	0.006	2.174
9.448	0.080	0.013	0.006	2.254
9.528	0.080	0.004	0.004	2.334
9.608	0.080	0.018	0.005	2.414
9.688	0.080	0.000	0.008	2.494
9.768	0.080	0.000	0.000	2.574
9.848	0.080	0.000	0.002	2.654
9.928	0.080	0.006	0.004	2.734
10.008	0.080	0.004	0.004	2.814
10.088	0.080	0.002	0.003	2.894
10.168	0.080	0.001	0.012	2.974
10.248	0.080	0.000	0.000	3.054
10.328	0.080	0.003	0.005	3.134
10.408	0.080	0.003	0.004	3.214
10.488	0.080	0.000	0.001	3.294
10.568	0.080	0.000	0.000	3.374
10.648	0.080	0.007	0.005	3.454
10.728	0.080	0.000	0.003	3.534
10.808	0.080	0.007	0.006	3.614
10.888	0.080	0.004	0.004	3.694
10.968	0.080	0.003	0.004	3.774
11.048	0.080	0.004	0.004	3.854
11.128	0.080	0.000	0.002	3.934
11.208	0.080	0.000	0.000	4.014
11.288	0.080	0.008	0.004	4.094

Continued on next page

TABLE XXI – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
11.368	0.080	0.005	0.004	4.174
11.448	0.080	0.001	0.004	4.254
11.528	0.080	0.000	0.000	4.334
11.608	0.080	0.000	0.001	4.414
11.688	0.080	0.000	0.000	4.494
11.768	0.080	0.003	0.005	4.574
11.848	0.080	0.001	0.006	4.654
11.928	0.080	0.000	0.029	4.734
12.008	0.080	0.000	0.000	4.814
12.088	0.080	0.009	0.005	4.894
12.168	0.080	0.000	0.030	4.974
12.248	0.080	0.000	0.005	5.054
12.328	0.080	0.001	0.005	5.134
12.408	0.080	0.007	0.004	5.214
12.488	0.080	0.000	0.000	5.294
12.568	0.080	0.001	0.011	5.374
12.648	0.080	0.005	0.005	5.454
12.728	0.080	0.008	0.007	5.534
12.808	0.080	0.003	0.006	5.614
12.888	0.080	0.004	0.005	5.694
12.968	0.080	0.002	0.005	5.774
13.048	0.080	0.000	0.000	5.854
13.128	0.080	0.005	0.006	5.934
13.208	0.080	0.006	0.006	6.014
13.288	0.080	0.000	0.004	6.094
13.368	0.080	0.004	0.006	6.174
13.448	0.080	0.000	0.000	6.254
13.528	0.080	0.011	0.008	6.334
13.608	0.080	0.000	0.000	6.414
13.688	0.080	0.000	0.000	6.494
13.768	0.080	0.000	0.012	6.574
13.848	0.080	0.009	0.006	6.654
13.928	0.080	0.003	0.007	6.734
14.008	0.080	0.002	0.006	6.814
14.088	0.080	0.006	0.009	6.894
14.168	0.080	0.000	0.010	6.974
14.248	0.080	0.000	0.000	7.054
14.328	0.080	0.007	0.011	7.134
14.408	0.080	0.000	0.000	7.214
14.488	0.080	0.000	0.000	7.294
14.568	0.080	0.004	0.097	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.000	0.049	7.534
14.808	0.080	0.017	0.037	7.614
14.888	0.080	0.000	4.598	7.694
14.968	0.080	3.839	4506183.000	7.774
15.048	0.080	0.000	0.000	7.854
15.128	0.080	0.000	15.571	7.934
15.208	0.080	0.000	22.394	8.014
15.288	0.080	0.000	34.496	8.094
15.368	0.080	0.000	50.168	8.174
15.448	0.080	0.000	95.121	8.254
15.528	0.080	0.000	124.769	8.334
15.608	0.080	0.000	237.215	8.414
15.688	0.080	0.000	337.095	8.494
15.768	0.080	0.000	686.230	8.574
15.848	0.080	0.000	1746.767	8.654
15.928	0.080	0.000	1746.767	8.734
16.008	0.080	0.001	9607.218	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXI – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

13. ^{91}Zr γ-ray 2366.560 keV

^{91}Zr nucleus
γ-ray observed 2366.560 keV
γ-ray originates in initial state at 2366.560 keV and goes to final state at 0.000 keV
Initial state is unk and final state is 5/2+ transition is type unk
Internal conversion coefficent α is 1.000

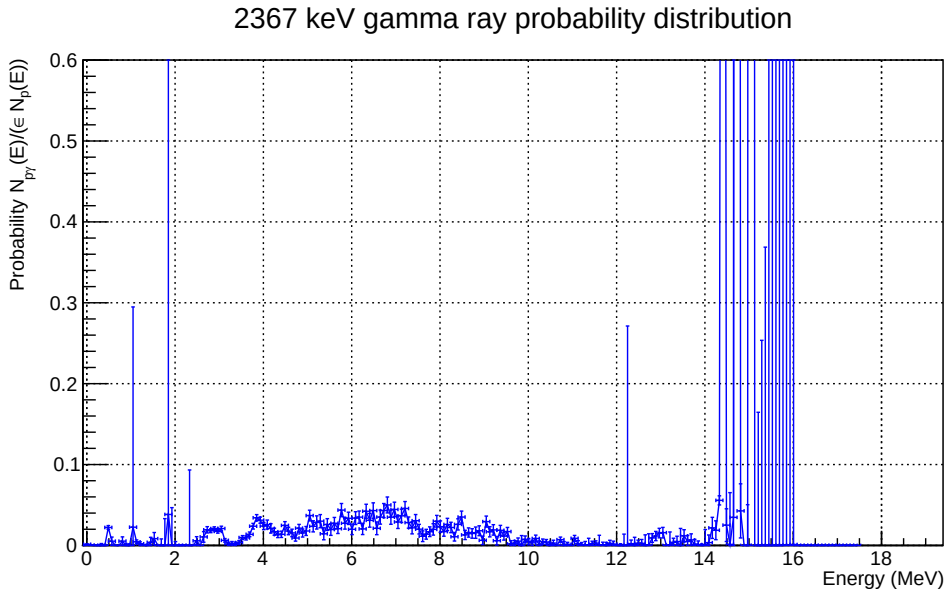

FIG. 40: Gamma ray probability distribution of the 2366.560 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2366.560 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.000	0.000	-7.266
0.008	0.080	0.001	0.000	-7.186
0.088	0.080	0.000	0.000	-7.106
0.168	0.080	0.000	0.000	-7.026
0.248	0.080	0.000	0.000	-6.946
0.328	0.080	0.000	0.002	-6.866
0.408	0.080	0.000	0.001	-6.786
0.488	0.080	0.022	0.002	-6.706
0.568	0.080	0.005	0.005	-6.626
0.648	0.080	0.000	0.000	-6.546
0.728	0.080	0.000	0.000	-6.466
0.808	0.080	0.005	0.005	-6.386
0.888	0.080	0.000	0.002	-6.306
0.968	0.080	0.000	0.002	-6.226
1.048	0.080	0.023	0.272	-6.146
1.128	0.080	0.004	0.002	-6.066
1.208	0.080	0.002	0.002	-5.986
1.288	0.080	0.000	0.000	-5.906
1.368	0.080	0.000	0.002	-5.826
1.448	0.080	0.004	0.006	-5.746
1.528	0.080	0.008	0.008	-5.666

Continued on next page

TABLE XXII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.000	-5.586
1.688	0.080	0.000	0.008	-5.506
1.768	0.080	0.000	0.033	-5.426
1.848	0.080	0.038	234176.891	-5.346
1.928	0.080	0.000	0.047	-5.266
2.008	0.080	0.000	0.005	-5.186
2.088	0.080	0.000	0.000	-5.106
2.168	0.080	0.000	0.000	-5.026
2.248	0.080	0.000	0.000	-4.946
2.328	0.080	0.000	0.093	-4.866
2.408	0.080	0.000	0.000	-4.786
2.488	0.080	0.006	0.005	-4.706
2.568	0.080	0.000	0.000	-4.626
2.648	0.080	0.010	0.007	-4.546
2.728	0.080	0.019	0.004	-4.466
2.808	0.080	0.018	0.002	-4.386
2.888	0.080	0.021	0.002	-4.306
2.968	0.080	0.017	0.002	-4.226
3.048	0.080	0.021	0.003	-4.146
3.128	0.080	0.006	0.002	-4.066
3.208	0.080	0.002	0.002	-3.986
3.288	0.080	0.002	0.002	-3.906
3.368	0.080	0.001	0.003	-3.826
3.448	0.080	0.004	0.002	-3.746
3.528	0.080	0.010	0.002	-3.666
3.608	0.080	0.009	0.003	-3.586
3.688	0.080	0.014	0.003	-3.506
3.768	0.080	0.024	0.004	-3.426
3.848	0.080	0.034	0.004	-3.346
3.928	0.080	0.031	0.004	-3.266
4.008	0.080	0.024	0.004	-3.186
4.088	0.080	0.026	0.006	-3.106
4.168	0.080	0.021	0.006	-3.026
4.248	0.080	0.017	0.004	-2.946
4.328	0.080	0.013	0.004	-2.866
4.408	0.080	0.014	0.004	-2.786
4.488	0.080	0.025	0.005	-2.706
4.568	0.080	0.018	0.005	-2.626
4.648	0.080	0.015	0.005	-2.546
4.728	0.080	0.009	0.004	-2.466
4.808	0.080	0.021	0.005	-2.386
4.888	0.080	0.015	0.005	-2.306
4.968	0.080	0.018	0.006	-2.226
5.048	0.080	0.037	0.007	-2.146
5.128	0.080	0.024	0.007	-2.066
5.208	0.080	0.028	0.008	-1.986
5.288	0.080	0.030	0.008	-1.906
5.368	0.080	0.014	0.007	-1.826
5.448	0.080	0.026	0.007	-1.746
5.528	0.080	0.020	0.007	-1.666
5.608	0.080	0.027	0.007	-1.586
5.688	0.080	0.021	0.006	-1.506
5.768	0.080	0.044	0.008	-1.426
5.848	0.080	0.027	0.007	-1.346
5.928	0.080	0.034	0.008	-1.266
6.008	0.080	0.020	0.007	-1.186
6.088	0.080	0.034	0.008	-1.106
6.168	0.080	0.035	0.008	-1.026
6.248	0.080	0.020	0.007	-0.946
6.328	0.080	0.042	0.009	-0.866
6.408	0.080	0.031	0.008	-0.786

Continued on next page

TABLE XXII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.043	0.010	-0.706
6.568	0.080	0.021	0.008	-0.626
6.648	0.080	0.035	0.009	-0.546
6.728	0.080	0.043	0.009	-0.466
6.808	0.080	0.050	0.010	-0.386
6.888	0.080	0.035	0.009	-0.306
6.968	0.080	0.045	0.009	-0.226
7.048	0.080	0.029	0.008	-0.146
7.128	0.080	0.037	0.008	-0.066
7.208	0.080	0.046	0.009	0.014
7.288	0.080	0.028	0.007	0.094
7.368	0.080	0.022	0.007	0.174
7.448	0.080	0.031	0.008	0.254
7.528	0.080	0.020	0.006	0.334
7.608	0.080	0.011	0.007	0.414
7.688	0.080	0.014	0.006	0.494
7.768	0.080	0.017	0.006	0.574
7.848	0.080	0.020	0.007	0.654
7.928	0.080	0.030	0.007	0.734
8.008	0.080	0.023	0.007	0.814
8.088	0.080	0.017	0.006	0.894
8.168	0.080	0.026	0.008	0.974
8.248	0.080	0.022	0.006	1.054
8.328	0.080	0.011	0.005	1.134
8.408	0.080	0.026	0.007	1.214
8.488	0.080	0.035	0.007	1.294
8.568	0.080	0.013	0.006	1.374
8.648	0.080	0.016	0.006	1.454
8.728	0.080	0.015	0.006	1.534
8.808	0.080	0.016	0.007	1.614
8.888	0.080	0.018	0.006	1.694
8.968	0.080	0.006	0.005	1.774
9.048	0.080	0.030	0.007	1.854
9.128	0.080	0.017	0.006	1.934
9.208	0.080	0.019	0.006	2.014
9.288	0.080	0.006	0.005	2.094
9.368	0.080	0.019	0.006	2.174
9.448	0.080	0.012	0.005	2.254
9.528	0.080	0.017	0.005	2.334
9.608	0.080	0.002	0.004	2.414
9.688	0.080	0.003	0.003	2.494
9.768	0.080	0.005	0.004	2.574
9.848	0.080	0.000	0.012	2.654
9.928	0.080	0.007	0.004	2.734
10.008	0.080	0.005	0.004	2.814
10.088	0.080	0.003	0.003	2.894
10.168	0.080	0.009	0.004	2.974
10.248	0.080	0.000	0.005	3.054
10.328	0.080	0.005	0.003	3.134
10.408	0.080	0.004	0.003	3.214
10.488	0.080	0.000	0.004	3.294
10.568	0.080	0.003	0.004	3.374
10.648	0.080	0.000	0.000	3.454
10.728	0.080	0.007	0.003	3.534
10.808	0.080	0.000	0.005	3.614
10.888	0.080	0.001	0.002	3.694
10.968	0.080	0.000	0.000	3.774
11.048	0.080	0.009	0.004	3.854
11.128	0.080	0.002	0.004	3.934
11.208	0.080	0.001	0.003	4.014
11.288	0.080	0.001	0.004	4.094

Continued on next page

TABLE XXII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.000	0.009	4.174
11.448	0.080	0.002	0.003	4.254
11.528	0.080	0.003	0.003	4.334
11.608	0.080	0.000	0.012	4.414
11.688	0.080	0.001	0.003	4.494
11.768	0.080	0.000	0.004	4.574
11.848	0.080	0.002	0.004	4.654
11.928	0.080	0.002	0.004	4.734
12.008	0.080	0.000	0.000	4.814
12.088	0.080	0.000	0.002	4.894
12.168	0.080	0.000	0.014	4.974
12.248	0.080	0.000	0.271	5.054
12.328	0.080	0.002	0.004	5.134
12.408	0.080	0.000	0.010	5.214
12.488	0.080	0.003	0.004	5.294
12.568	0.080	0.003	0.005	5.374
12.648	0.080	0.000	0.013	5.454
12.728	0.080	0.000	0.014	5.534
12.808	0.080	0.009	0.005	5.614
12.888	0.080	0.012	0.006	5.694
12.968	0.080	0.015	0.006	5.774
13.048	0.080	0.016	0.007	5.854
13.128	0.080	0.000	0.000	5.934
13.208	0.080	0.001	0.016	6.014
13.288	0.080	0.004	0.005	6.094
13.368	0.080	0.005	0.007	6.174
13.448	0.080	0.000	0.021	6.254
13.528	0.080	0.012	0.008	6.334
13.608	0.080	0.005	0.007	6.414
13.688	0.080	0.007	0.007	6.494
13.768	0.080	0.001	0.006	6.574
13.848	0.080	0.001	0.004	6.654
13.928	0.080	0.000	0.002	6.734
14.008	0.080	0.000	0.019	6.814
14.088	0.080	0.004	0.009	6.894
14.168	0.080	0.022	0.013	6.974
14.248	0.080	0.019	0.012	7.054
14.328	0.080	0.056	0.006	7.134
14.408	0.080	3.149	0.215	7.214
14.488	0.080	0.025	0.020	7.294
14.568	0.080	0.001	0.064	7.374
14.648	0.080	0.035	1394241.000	7.454
14.728	0.080	6.859	0.892	7.534
14.808	0.080	0.043	0.033	7.614
14.888	0.080	0.000	0.000	7.694
14.968	0.080	0.000	0.050	7.774
15.048	0.080	14.272	0.973	7.854
15.128	0.080	0.000	0.000	7.934
15.208	0.080	0.000	0.165	8.014
15.288	0.080	0.000	0.254	8.094
15.368	0.080	0.000	0.369	8.174
15.448	0.080	0.000	0.699	8.254
15.528	0.080	0.000	0.917	8.334
15.608	0.080	0.000	1.744	8.414
15.688	0.080	0.000	2.478	8.494
15.768	0.080	0.000	5.044	8.574
15.848	0.080	0.000	12.840	8.654
15.928	0.080	0.000	12.840	8.734
16.008	0.080	0.001	70.618	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

14. ^{91}Zr γ-ray 2557.800 keV

^{91}Zr nucleus
γ-ray observed 2557.800 keV
γ-ray originates in initial state at 2557.800 keV and goes to final state at 0.000 keV
Initial state is 1/2+ and final state is 5/2+ transition is type M2
Internal conversion coefficent α is 1.000

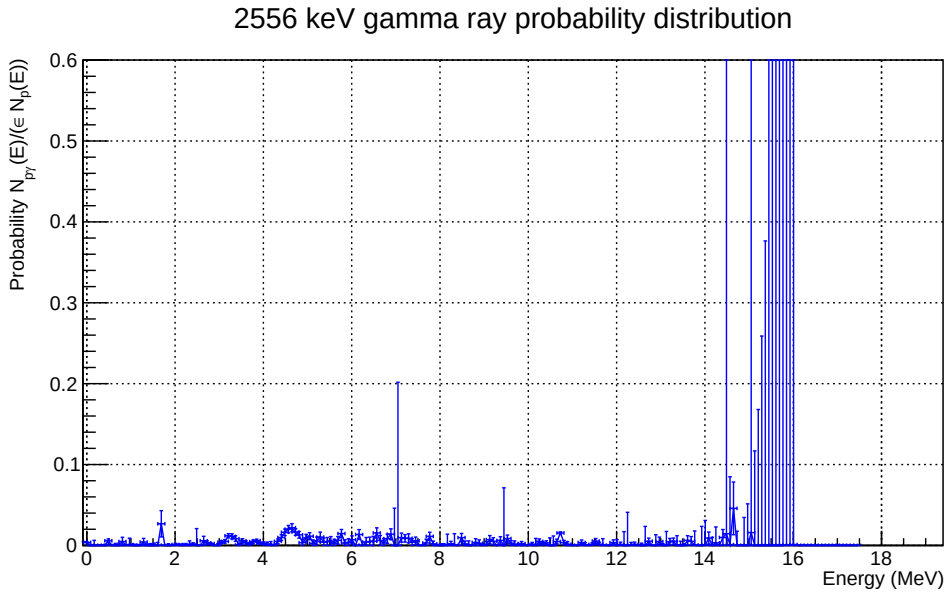

FIG. 41: Gamma ray probability distribution of the 2557.800 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXIII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2557.800 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.004	0.000	-7.266
0.008	0.080	0.004	0.000	-7.186
0.088	0.080	0.000	0.000	-7.106
0.168	0.080	0.000	0.006	-7.026
0.248	0.080	0.000	0.000	-6.946
0.328	0.080	0.000	0.000	-6.866
0.408	0.080	0.000	0.001	-6.786
0.488	0.080	0.006	0.002	-6.706
0.568	0.080	0.000	0.000	-6.626
0.648	0.080	0.000	0.002	-6.546
0.728	0.080	0.000	0.003	-6.466
0.808	0.080	0.005	0.005	-6.386
0.888	0.080	0.000	0.000	-6.306
0.968	0.080	0.001	0.008	-6.226
1.048	0.080	0.000	0.002	-6.146
1.128	0.080	0.000	0.001	-6.066
1.208	0.080	0.000	0.001	-5.986
1.288	0.080	0.004	0.004	-5.906
1.368	0.080	0.000	0.002	-5.826
1.448	0.080	0.000	0.002	-5.746
1.528	0.080	0.000	0.003	-5.666

Continued on next page

TABLE XXIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.004	-5.586
1.688	0.080	0.027	0.016	-5.506
1.768	0.080	0.000	0.000	-5.426
1.848	0.080	0.000	0.002	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.001	0.002	-5.186
2.088	0.080	0.001	0.001	-5.106
2.168	0.080	0.000	0.002	-5.026
2.248	0.080	0.001	0.001	-4.946
2.328	0.080	0.000	0.006	-4.866
2.408	0.080	0.002	0.001	-4.786
2.488	0.080	0.000	0.021	-4.706
2.568	0.080	0.000	0.000	-4.626
2.648	0.080	0.006	0.006	-4.546
2.728	0.080	0.003	0.002	-4.466
2.808	0.080	0.002	0.001	-4.386
2.888	0.080	0.000	0.000	-4.306
2.968	0.080	0.000	0.002	-4.226
3.048	0.080	0.004	0.002	-4.146
3.128	0.080	0.005	0.002	-4.066
3.208	0.080	0.012	0.003	-3.986
3.288	0.080	0.011	0.003	-3.906
3.368	0.080	0.008	0.003	-3.826
3.448	0.080	0.001	0.002	-3.746
3.528	0.080	0.006	0.002	-3.666
3.608	0.080	0.003	0.002	-3.586
3.688	0.080	0.002	0.002	-3.506
3.768	0.080	0.005	0.002	-3.426
3.848	0.080	0.006	0.002	-3.346
3.928	0.080	0.003	0.002	-3.266
4.008	0.080	0.002	0.002	-3.186
4.088	0.080	0.001	0.003	-3.106
4.168	0.080	0.001	0.003	-3.026
4.248	0.080	0.000	0.000	-2.946
4.328	0.080	0.005	0.003	-2.866
4.408	0.080	0.010	0.003	-2.786
4.488	0.080	0.016	0.004	-2.706
4.568	0.080	0.020	0.005	-2.626
4.648	0.080	0.022	0.005	-2.546
4.728	0.080	0.017	0.004	-2.466
4.808	0.080	0.013	0.004	-2.386
4.888	0.080	0.003	0.004	-2.306
4.968	0.080	0.009	0.004	-2.226
5.048	0.080	0.011	0.004	-2.146
5.128	0.080	0.002	0.004	-2.066
5.208	0.080	0.005	0.005	-1.986
5.288	0.080	0.010	0.006	-1.906
5.368	0.080	0.004	0.005	-1.826
5.448	0.080	0.005	0.005	-1.746
5.528	0.080	0.005	0.005	-1.666
5.608	0.080	0.003	0.005	-1.586
5.688	0.080	0.006	0.005	-1.506
5.768	0.080	0.015	0.005	-1.426
5.848	0.080	0.003	0.004	-1.346
5.928	0.080	0.004	0.005	-1.266
6.008	0.080	0.007	0.005	-1.186
6.088	0.080	0.000	0.000	-1.106
6.168	0.080	0.014	0.006	-1.026
6.248	0.080	0.000	0.000	-0.946
6.328	0.080	0.004	0.006	-0.866
6.408	0.080	0.005	0.005	-0.786

Continued on next page

TABLE XXIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.005	0.006	-0.706
6.568	0.080	0.015	0.006	-0.626
6.648	0.080	0.006	0.006	-0.546
6.728	0.080	0.003	0.006	-0.466
6.808	0.080	0.008	0.006	-0.386
6.888	0.080	0.014	0.007	-0.306
6.968	0.080	0.000	0.046	-0.226
7.048	0.080	0.000	0.202	-0.146
7.128	0.080	0.010	0.006	-0.066
7.208	0.080	0.009	0.005	0.014
7.288	0.080	0.009	0.006	0.094
7.368	0.080	0.004	0.004	0.174
7.448	0.080	0.006	0.005	0.254
7.528	0.080	0.000	0.000	0.334
7.608	0.080	0.000	0.000	0.414
7.688	0.080	0.003	0.005	0.494
7.768	0.080	0.011	0.005	0.574
7.848	0.080	0.002	0.003	0.654
7.928	0.080	0.000	0.000	0.734
8.008	0.080	0.000	0.002	0.814
8.088	0.080	0.000	0.002	0.894
8.168	0.080	0.000	0.014	0.974
8.248	0.080	0.002	0.003	1.054
8.328	0.080	0.000	0.014	1.134
8.408	0.080	0.000	0.000	1.214
8.488	0.080	0.010	0.005	1.294
8.568	0.080	0.002	0.004	1.374
8.648	0.080	0.000	0.006	1.454
8.728	0.080	0.000	0.000	1.534
8.808	0.080	0.004	0.005	1.614
8.888	0.080	0.003	0.004	1.694
8.968	0.080	0.000	0.000	1.774
9.048	0.080	0.001	0.004	1.854
9.128	0.080	0.007	0.005	1.934
9.208	0.080	0.005	0.004	2.014
9.288	0.080	0.000	0.000	2.094
9.368	0.080	0.006	0.005	2.174
9.448	0.080	0.000	0.071	2.254
9.528	0.080	0.009	0.004	2.334
9.608	0.080	0.003	0.003	2.414
9.688	0.080	0.002	0.004	2.494
9.768	0.080	0.000	0.000	2.574
9.848	0.080	0.002	0.002	2.654
9.928	0.080	0.000	0.000	2.734
10.008	0.080	0.000	0.000	2.814
10.088	0.080	0.002	0.002	2.894
10.168	0.080	0.000	0.009	2.974
10.248	0.080	0.005	0.003	3.054
10.328	0.080	0.002	0.003	3.134
10.408	0.080	0.003	0.003	3.214
10.488	0.080	0.000	0.009	3.294
10.568	0.080	0.000	0.012	3.374
10.648	0.080	0.005	0.003	3.454
10.728	0.080	0.015	0.001	3.534
10.808	0.080	0.003	0.003	3.614
10.888	0.080	0.002	0.003	3.694
10.968	0.080	0.000	0.000	3.774
11.048	0.080	0.000	0.000	3.854
11.128	0.080	0.000	0.000	3.934
11.208	0.080	0.004	0.003	4.014
11.288	0.080	0.001	0.002	4.094

Continued on next page

TABLE XXIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.000	0.000	4.174
11.448	0.080	0.001	0.002	4.254
11.528	0.080	0.005	0.003	4.334
11.608	0.080	0.002	0.002	4.414
11.688	0.080	0.000	0.008	4.494
11.768	0.080	0.000	0.000	4.574
11.848	0.080	0.000	0.001	4.654
11.928	0.080	0.004	0.003	4.734
12.008	0.080	0.000	0.007	4.814
12.088	0.080	0.001	0.003	4.894
12.168	0.080	0.000	0.017	4.974
12.248	0.080	0.000	0.041	5.054
12.328	0.080	0.000	0.003	5.134
12.408	0.080	0.001	0.003	5.214
12.488	0.080	0.000	0.000	5.294
12.568	0.080	0.000	0.003	5.374
12.648	0.080	0.000	0.024	5.454
12.728	0.080	0.005	0.004	5.534
12.808	0.080	0.000	0.000	5.614
12.888	0.080	0.000	0.013	5.694
12.968	0.080	0.005	0.006	5.774
13.048	0.080	0.000	0.002	5.854
13.128	0.080	0.000	0.017	5.934
13.208	0.080	0.004	0.004	6.014
13.288	0.080	0.005	0.004	6.094
13.368	0.080	0.000	0.012	6.174
13.448	0.080	0.000	0.005	6.254
13.528	0.080	0.000	0.002	6.334
13.608	0.080	0.006	0.006	6.414
13.688	0.080	0.005	0.006	6.494
13.768	0.080	0.000	0.017	6.574
13.848	0.080	0.000	0.000	6.654
13.928	0.080	0.000	0.024	6.734
14.008	0.080	0.000	0.031	6.814
14.088	0.080	0.009	0.007	6.894
14.168	0.080	0.000	0.010	6.974
14.248	0.080	0.003	0.020	7.054
14.328	0.080	0.000	0.000	7.134
14.408	0.080	0.010	0.010	7.214
14.488	0.080	0.014	711381.938	7.294
14.568	0.080	0.001	0.084	7.374
14.648	0.080	0.046	0.033	7.454
14.728	0.080	0.000	0.018	7.534
14.808	0.080	0.000	0.000	7.614
14.888	0.080	0.000	0.035	7.694
14.968	0.080	0.000	0.051	7.774
15.048	0.080	0.016	0.588	7.854
15.128	0.080	0.000	0.117	7.934
15.208	0.080	0.000	0.168	8.014
15.288	0.080	0.000	0.259	8.094
15.368	0.080	0.000	0.376	8.174
15.448	0.080	0.000	0.714	8.254
15.528	0.080	0.000	0.936	8.334
15.608	0.080	0.000	1.780	8.414
15.688	0.080	0.000	2.530	8.494
15.768	0.080	0.000	5.149	8.574
15.848	0.080	0.000	13.107	8.654
15.928	0.080	0.000	13.107	8.734
16.008	0.080	0.001	72.091	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

15. ^{91}Zr γ-ray 2577.900 keV

^{91}Zr nucleus
γ-ray observed 2577.900 keV
γ-ray originates in initial state at 2577.900 keV and goes to final state at 0.000 keV
Initial state is (3/2)- and final state is 5/2+ transition is type E1
Internal conversion coefficent α is 1.000

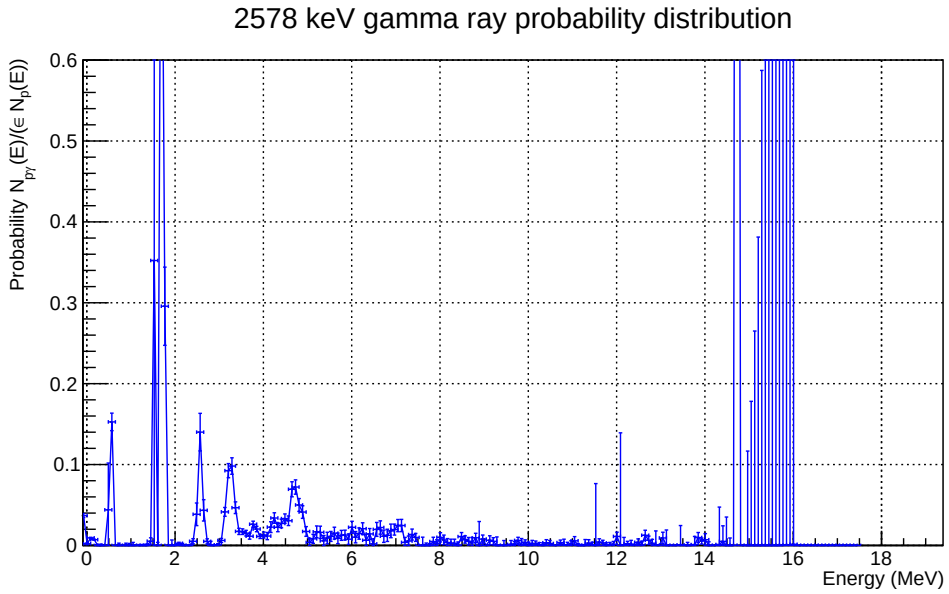

FIG. 42: Gamma ray probability distribution of the 2577.900 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXIV: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2577.900 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.037	0.002	-7.266
0.008	0.080	0.002	0.001	-7.186
0.088	0.080	0.009	0.001	-7.106
0.168	0.080	0.007	0.001	-7.026
0.248	0.080	0.000	0.002	-6.946
0.328	0.080	0.000	0.002	-6.866
0.408	0.080	0.000	0.000	-6.786
0.488	0.080	0.044	0.058	-6.706
0.568	0.080	0.153	0.011	-6.626
0.648	0.080	0.000	0.000	-6.546
0.728	0.080	0.000	0.003	-6.466
0.808	0.080	0.000	0.000	-6.386
0.888	0.080	0.000	0.003	-6.306
0.968	0.080	0.000	0.002	-6.226
1.048	0.080	0.000	0.004	-6.146
1.128	0.080	0.000	0.000	-6.066
1.208	0.080	0.000	0.001	-5.986
1.288	0.080	0.000	0.001	-5.906
1.368	0.080	0.000	0.002	-5.826
1.448	0.080	0.005	0.004	-5.746
1.528	0.080	0.352	425106.844	-5.666

Continued on next page

TABLE XXIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.004	-5.586
1.688	0.080	0.979	539573.000	-5.506
1.768	0.080	0.296	0.048	-5.426
1.848	0.080	0.000	0.000	-5.346
1.928	0.080	0.000	0.007	-5.266
2.008	0.080	0.000	0.001	-5.186
2.088	0.080	0.003	0.001	-5.106
2.168	0.080	0.000	0.002	-5.026
2.248	0.080	0.000	0.000	-4.946
2.328	0.080	0.000	0.001	-4.866
2.408	0.080	0.005	0.003	-4.786
2.488	0.080	0.038	0.014	-4.706
2.568	0.080	0.140	0.023	-4.626
2.648	0.080	0.043	0.013	-4.546
2.728	0.080	0.005	0.003	-4.466
2.808	0.080	0.000	0.005	-4.386
2.888	0.080	0.000	0.001	-4.306
2.968	0.080	0.001	0.001	-4.226
3.048	0.080	0.006	0.003	-4.146
3.128	0.080	0.041	0.005	-4.066
3.208	0.080	0.092	0.009	-3.986
3.288	0.080	0.098	0.010	-3.906
3.368	0.080	0.047	0.007	-3.826
3.448	0.080	0.017	0.004	-3.746
3.528	0.080	0.017	0.003	-3.666
3.608	0.080	0.015	0.003	-3.586
3.688	0.080	0.011	0.004	-3.506
3.768	0.080	0.026	0.004	-3.426
3.848	0.080	0.020	0.003	-3.346
3.928	0.080	0.011	0.003	-3.266
4.008	0.080	0.013	0.004	-3.186
4.088	0.080	0.012	0.004	-3.106
4.168	0.080	0.023	0.007	-3.026
4.248	0.080	0.034	0.006	-2.946
4.328	0.080	0.022	0.005	-2.866
4.408	0.080	0.027	0.005	-2.786
4.488	0.080	0.033	0.006	-2.706
4.568	0.080	0.031	0.006	-2.626
4.648	0.080	0.069	0.009	-2.546
4.728	0.080	0.072	0.009	-2.466
4.808	0.080	0.050	0.008	-2.386
4.888	0.080	0.041	0.008	-2.306
4.968	0.080	0.017	0.006	-2.226
5.048	0.080	0.004	0.005	-2.146
5.128	0.080	0.008	0.006	-2.066
5.208	0.080	0.017	0.007	-1.986
5.288	0.080	0.016	0.008	-1.906
5.368	0.080	0.006	0.007	-1.826
5.448	0.080	0.009	0.007	-1.746
5.528	0.080	0.011	0.006	-1.666
5.608	0.080	0.015	0.007	-1.586
5.688	0.080	0.009	0.007	-1.506
5.768	0.080	0.013	0.006	-1.426
5.848	0.080	0.013	0.006	-1.346
5.928	0.080	0.008	0.006	-1.266
6.008	0.080	0.022	0.007	-1.186
6.088	0.080	0.010	0.007	-1.106
6.168	0.080	0.015	0.007	-1.026
6.248	0.080	0.021	0.007	-0.946
6.328	0.080	0.006	0.008	-0.866
6.408	0.080	0.014	0.007	-0.786

Continued on next page

TABLE XXIV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.002	0.006	-0.706
6.568	0.080	0.020	0.009	-0.626
6.648	0.080	0.022	0.008	-0.546
6.728	0.080	0.011	0.008	-0.466
6.808	0.080	0.013	0.008	-0.386
6.888	0.080	0.018	0.008	-0.306
6.968	0.080	0.020	0.007	-0.226
7.048	0.080	0.024	0.008	-0.146
7.128	0.080	0.025	0.008	-0.066
7.208	0.080	0.004	0.006	0.014
7.288	0.080	0.005	0.006	0.094
7.368	0.080	0.013	0.007	0.174
7.448	0.080	0.010	0.005	0.254
7.528	0.080	0.000	0.000	0.334
7.608	0.080	0.000	0.010	0.414
7.688	0.080	0.000	0.003	0.494
7.768	0.080	0.000	0.002	0.574
7.848	0.080	0.005	0.005	0.654
7.928	0.080	0.002	0.005	0.734
8.008	0.080	0.010	0.006	0.814
8.088	0.080	0.007	0.006	0.894
8.168	0.080	0.004	0.005	0.974
8.248	0.080	0.002	0.005	1.054
8.328	0.080	0.003	0.005	1.134
8.408	0.080	0.000	0.004	1.214
8.488	0.080	0.011	0.005	1.294
8.568	0.080	0.007	0.005	1.374
8.648	0.080	0.005	0.005	1.454
8.728	0.080	0.003	0.007	1.534
8.808	0.080	0.009	0.006	1.614
8.888	0.080	0.000	0.030	1.694
8.968	0.080	0.008	0.005	1.774
9.048	0.080	0.000	0.000	1.854
9.128	0.080	0.006	0.006	1.934
9.208	0.080	0.005	0.004	2.014
9.288	0.080	0.000	0.011	2.094
9.368	0.080	0.000	0.000	2.174
9.448	0.080	0.000	0.006	2.254
9.528	0.080	0.000	0.000	2.334
9.608	0.080	0.001	0.005	2.414
9.688	0.080	0.002	0.003	2.494
9.768	0.080	0.006	0.004	2.574
9.848	0.080	0.000	0.008	2.654
9.928	0.080	0.004	0.003	2.734
10.008	0.080	0.000	0.004	2.814
10.088	0.080	0.002	0.004	2.894
10.168	0.080	0.002	0.003	2.974
10.248	0.080	0.001	0.003	3.054
10.328	0.080	0.000	0.003	3.134
10.408	0.080	0.003	0.004	3.214
10.488	0.080	0.002	0.004	3.294
10.568	0.080	0.000	0.000	3.374
10.648	0.080	0.000	0.000	3.454
10.728	0.080	0.004	0.003	3.534
10.808	0.080	0.001	0.007	3.614
10.888	0.080	0.001	0.003	3.694
10.968	0.080	0.002	0.004	3.774
11.048	0.080	0.006	0.005	3.854
11.128	0.080	0.000	0.002	3.934
11.208	0.080	0.000	0.001	4.014
11.288	0.080	0.000	0.007	4.094

Continued on next page

TABLE XXIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.003	0.004	4.174
11.448	0.080	0.001	0.003	4.254
11.528	0.080	0.000	0.076	4.334
11.608	0.080	0.004	0.004	4.414
11.688	0.080	0.003	0.003	4.494
11.768	0.080	0.000	0.003	4.574
11.848	0.080	0.001	0.003	4.654
11.928	0.080	0.001	0.003	4.734
12.008	0.080	0.011	0.005	4.814
12.088	0.080	0.000	0.139	4.894
12.168	0.080	0.000	0.010	4.974
12.248	0.080	0.002	0.003	5.054
12.328	0.080	0.002	0.005	5.134
12.408	0.080	0.000	0.000	5.214
12.488	0.080	0.004	0.004	5.294
12.568	0.080	0.001	0.005	5.374
12.648	0.080	0.013	0.006	5.454
12.728	0.080	0.006	0.005	5.534
12.808	0.080	0.003	0.005	5.614
12.888	0.080	0.000	0.018	5.694
12.968	0.080	0.000	0.000	5.774
13.048	0.080	0.009	0.007	5.854
13.128	0.080	0.000	0.019	5.934
13.208	0.080	0.000	0.000	6.014
13.288	0.080	0.000	0.000	6.094
13.368	0.080	0.000	0.000	6.174
13.448	0.080	0.001	0.024	6.254
13.528	0.080	0.000	0.000	6.334
13.608	0.080	0.000	0.004	6.414
13.688	0.080	0.000	0.000	6.494
13.768	0.080	0.001	0.010	6.574
13.848	0.080	0.010	0.006	6.654
13.928	0.080	0.005	0.004	6.734
14.008	0.080	0.007	0.008	6.814
14.088	0.080	0.000	0.004	6.894
14.168	0.080	0.000	0.000	6.974
14.248	0.080	0.000	0.000	7.054
14.328	0.080	0.001	0.046	7.134
14.408	0.080	0.005	0.019	7.214
14.488	0.080	0.000	0.035	7.294
14.568	0.080	0.000	0.009	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	3.077	0.208	7.534
14.808	0.080	0.000	0.000	7.614
14.888	0.080	0.000	0.000	7.694
14.968	0.080	0.000	0.117	7.774
15.048	0.080	0.000	0.178	7.854
15.128	0.080	0.000	0.265	7.934
15.208	0.080	0.000	0.381	8.014
15.288	0.080	0.000	0.587	8.094
15.368	0.080	0.000	0.854	8.174
15.448	0.080	0.000	1.619	8.254
15.528	0.080	0.000	2.124	8.334
15.608	0.080	0.000	4.038	8.414
15.688	0.080	0.000	5.738	8.494
15.768	0.080	0.000	11.682	8.574
15.848	0.080	0.000	29.735	8.654
15.928	0.080	0.000	29.735	8.734
16.008	0.080	0.001	163.545	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

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TABLE XXIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

16. ^{91}Zr γ-ray 2640.200 keV

^{91}Zr nucleus
γ-ray observed 2640.200 keV
γ-ray originates in initial state at 2640.200 keV and goes to final state at 0.000 keV
Initial state is (3/2)- and final state is 5/2+ transition is type E1
Internal conversion coefficent α is 1.000

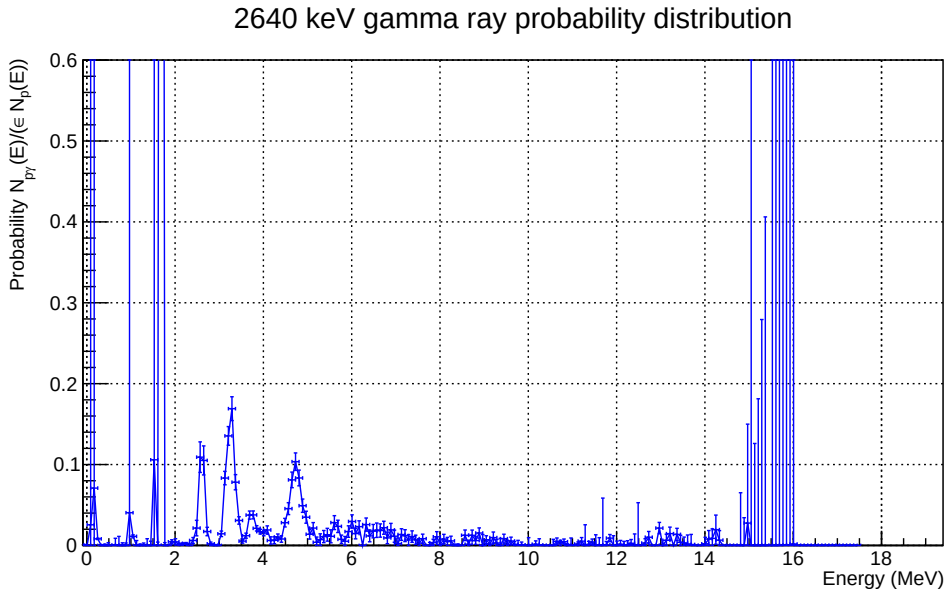

FIG. 43: Gamma ray probability distribution of the 2640.200 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXV: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2640.200 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.001	0.001	-7.266
0.008	0.080	0.000	0.000	-7.186
0.088	0.080	0.025	23453.188	-7.106
0.168	0.080	0.071	46125.480	-7.026
0.248	0.080	0.008	0.001	-6.946
0.328	0.080	0.000	0.001	-6.866
0.408	0.080	0.000	0.002	-6.786
0.488	0.080	0.000	0.003	-6.706
0.568	0.080	0.000	0.000	-6.626
0.648	0.080	0.000	0.008	-6.546
0.728	0.080	0.000	0.011	-6.466
0.808	0.080	0.000	0.003	-6.386
0.888	0.080	0.000	0.003	-6.306
0.968	0.080	0.041	421337.344	-6.226
1.048	0.080	0.011	0.002	-6.146
1.128	0.080	0.000	0.006	-6.066
1.208	0.080	0.000	0.002	-5.986
1.288	0.080	0.000	0.003	-5.906
1.368	0.080	0.000	0.008	-5.826
1.448	0.080	0.000	0.005	-5.746
1.528	0.080	0.106	502276.812	-5.666

Continued on next page

TABLE XXV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.004	-5.586
1.688	0.080	3.096	0.207	-5.506
1.768	0.080	0.000	0.003	-5.426
1.848	0.080	0.000	0.000	-5.346
1.928	0.080	0.004	0.002	-5.266
2.008	0.080	0.004	0.004	-5.186
2.088	0.080	0.001	0.002	-5.106
2.168	0.080	0.002	0.001	-5.026
2.248	0.080	0.003	0.001	-4.946
2.328	0.080	0.000	0.000	-4.866
2.408	0.080	0.006	0.004	-4.786
2.488	0.080	0.022	0.010	-4.706
2.568	0.080	0.109	0.019	-4.626
2.648	0.080	0.105	0.018	-4.546
2.728	0.080	0.017	0.005	-4.466
2.808	0.080	0.002	0.002	-4.386
2.888	0.080	0.000	0.001	-4.306
2.968	0.080	0.000	0.001	-4.226
3.048	0.080	0.014	0.003	-4.146
3.128	0.080	0.083	0.008	-4.066
3.208	0.080	0.135	0.012	-3.986
3.288	0.080	0.169	0.015	-3.906
3.368	0.080	0.078	0.009	-3.826
3.448	0.080	0.031	0.005	-3.746
3.528	0.080	0.005	0.002	-3.666
3.608	0.080	0.012	0.003	-3.586
3.688	0.080	0.038	0.005	-3.506
3.768	0.080	0.038	0.005	-3.426
3.848	0.080	0.021	0.003	-3.346
3.928	0.080	0.017	0.003	-3.266
4.008	0.080	0.015	0.003	-3.186
4.088	0.080	0.019	0.005	-3.106
4.168	0.080	0.006	0.005	-3.026
4.248	0.080	0.006	0.004	-2.946
4.328	0.080	0.010	0.004	-2.866
4.408	0.080	0.008	0.004	-2.786
4.488	0.080	0.028	0.005	-2.706
4.568	0.080	0.045	0.007	-2.626
4.648	0.080	0.081	0.010	-2.546
4.728	0.080	0.104	0.011	-2.466
4.808	0.080	0.083	0.010	-2.386
4.888	0.080	0.049	0.008	-2.306
4.968	0.080	0.035	0.007	-2.226
5.048	0.080	0.014	0.006	-2.146
5.128	0.080	0.022	0.007	-2.066
5.208	0.080	0.004	0.007	-1.986
5.288	0.080	0.007	0.007	-1.906
5.368	0.080	0.011	0.007	-1.826
5.448	0.080	0.013	0.008	-1.746
5.528	0.080	0.011	0.008	-1.666
5.608	0.080	0.028	0.009	-1.586
5.688	0.080	0.024	0.008	-1.506
5.768	0.080	0.007	0.005	-1.426
5.848	0.080	0.005	0.006	-1.346
5.928	0.080	0.017	0.007	-1.266
6.008	0.080	0.030	0.008	-1.186
6.088	0.080	0.015	0.007	-1.106
6.168	0.080	0.023	0.007	-1.026
6.248	0.080	0.000	0.000	-0.946
6.328	0.080	0.026	0.008	-0.866
6.408	0.080	0.012	0.007	-0.786

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TABLE XXV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.018	0.008	-0.706
6.568	0.080	0.019	0.009	-0.626
6.648	0.080	0.018	0.008	-0.546
6.728	0.080	0.022	0.008	-0.466
6.808	0.080	0.009	0.007	-0.386
6.888	0.080	0.019	0.008	-0.306
6.968	0.080	0.011	0.007	-0.226
7.048	0.080	0.002	0.007	-0.146
7.128	0.080	0.014	0.007	-0.066
7.208	0.080	0.012	0.007	0.014
7.288	0.080	0.007	0.007	0.094
7.368	0.080	0.011	0.007	0.174
7.448	0.080	0.007	0.006	0.254
7.528	0.080	0.003	0.005	0.334
7.608	0.080	0.008	0.006	0.414
7.688	0.080	0.000	0.000	0.494
7.768	0.080	0.000	0.004	0.574
7.848	0.080	0.003	0.004	0.654
7.928	0.080	0.011	0.006	0.734
8.008	0.080	0.001	0.006	0.814
8.088	0.080	0.008	0.006	0.894
8.168	0.080	0.005	0.005	0.974
8.248	0.080	0.006	0.006	1.054
8.328	0.080	0.000	0.002	1.134
8.408	0.080	0.000	0.002	1.214
8.488	0.080	0.000	0.000	1.294
8.568	0.080	0.013	0.007	1.374
8.648	0.080	0.002	0.005	1.454
8.728	0.080	0.013	0.006	1.534
8.808	0.080	0.006	0.005	1.614
8.888	0.080	0.015	0.006	1.694
8.968	0.080	0.000	0.013	1.774
9.048	0.080	0.007	0.005	1.854
9.128	0.080	0.002	0.005	1.934
9.208	0.080	0.010	0.007	2.014
9.288	0.080	0.003	0.004	2.094
9.368	0.080	0.000	0.009	2.174
9.448	0.080	0.008	0.005	2.254
9.528	0.080	0.002	0.005	2.334
9.608	0.080	0.005	0.005	2.414
9.688	0.080	0.001	0.004	2.494
9.768	0.080	0.001	0.005	2.574
9.848	0.080	0.001	0.003	2.654
9.928	0.080	0.000	0.000	2.734
10.008	0.080	0.000	0.010	2.814
10.088	0.080	0.000	0.000	2.894
10.168	0.080	0.002	0.004	2.974
10.248	0.080	0.001	0.008	3.054
10.328	0.080	0.000	0.000	3.134
10.408	0.080	0.000	0.000	3.214
10.488	0.080	0.000	0.000	3.294
10.568	0.080	0.000	0.008	3.374
10.648	0.080	0.005	0.004	3.454
10.728	0.080	0.003	0.004	3.534
10.808	0.080	0.005	0.003	3.614
10.888	0.080	0.000	0.002	3.694
10.968	0.080	0.001	0.009	3.774
11.048	0.080	0.000	0.000	3.854
11.128	0.080	0.002	0.003	3.934
11.208	0.080	0.005	0.004	4.014
11.288	0.080	0.000	0.026	4.094

Continued on next page

TABLE XXV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.001	0.004	4.174
11.448	0.080	0.004	0.004	4.254
11.528	0.080	0.000	0.013	4.334
11.608	0.080	0.000	0.009	4.414
11.688	0.080	0.000	0.059	4.494
11.768	0.080	0.001	0.004	4.574
11.848	0.080	0.009	0.004	4.654
11.928	0.080	0.000	0.012	4.734
12.008	0.080	0.000	0.005	4.814
12.088	0.080	0.002	0.005	4.894
12.168	0.080	0.000	0.005	4.974
12.248	0.080	0.000	0.006	5.054
12.328	0.080	0.003	0.005	5.134
12.408	0.080	0.000	0.014	5.214
12.488	0.080	0.000	0.053	5.294
12.568	0.080	0.000	0.000	5.374
12.648	0.080	0.003	0.005	5.454
12.728	0.080	0.010	0.007	5.534
12.808	0.080	0.000	0.000	5.614
12.888	0.080	0.000	0.000	5.694
12.968	0.080	0.021	0.007	5.774
13.048	0.080	0.000	0.003	5.854
13.128	0.080	0.006	0.008	5.934
13.208	0.080	0.015	0.008	6.014
13.288	0.080	0.000	0.000	6.094
13.368	0.080	0.014	0.007	6.174
13.448	0.080	0.004	0.009	6.254
13.528	0.080	0.003	0.007	6.334
13.608	0.080	0.002	0.011	6.414
13.688	0.080	0.001	0.012	6.494
13.768	0.080	0.000	0.000	6.574
13.848	0.080	0.000	0.000	6.654
13.928	0.080	0.000	0.000	6.734
14.008	0.080	0.002	0.008	6.814
14.088	0.080	0.008	0.010	6.894
14.168	0.080	0.009	0.012	6.974
14.248	0.080	0.020	0.018	7.054
14.328	0.080	0.007	0.012	7.134
14.408	0.080	0.000	0.000	7.214
14.488	0.080	0.000	0.000	7.294
14.568	0.080	0.000	0.000	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.000	0.000	7.534
14.808	0.080	0.000	0.065	7.614
14.888	0.080	0.000	0.034	7.694
14.968	0.080	0.028	0.122	7.774
15.048	0.080	0.000	7.154	7.854
15.128	0.080	0.000	0.126	7.934
15.208	0.080	0.000	0.181	8.014
15.288	0.080	0.000	0.279	8.094
15.368	0.080	0.000	0.406	8.174
15.448	0.080	0.000	0.000	8.254
15.528	0.080	0.000	1.010	8.334
15.608	0.080	0.000	1.921	8.414
15.688	0.080	0.000	2.729	8.494
15.768	0.080	0.000	5.556	8.574
15.848	0.080	0.000	14.142	8.654
15.928	0.080	0.000	14.142	8.734
16.008	0.080	0.002	77.780	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

17. ^{91}Zr γ-ray 2775.200 keV

^{91}Zr nucleus
γ-ray observed 2775.200 keV
γ-ray originates in initial state at 2775.200 keV and goes to final state at 0.000 keV
Initial state is (5/2)- and final state is 3/2+ transition is type E1
Internal conversion coefficent α is 1.000

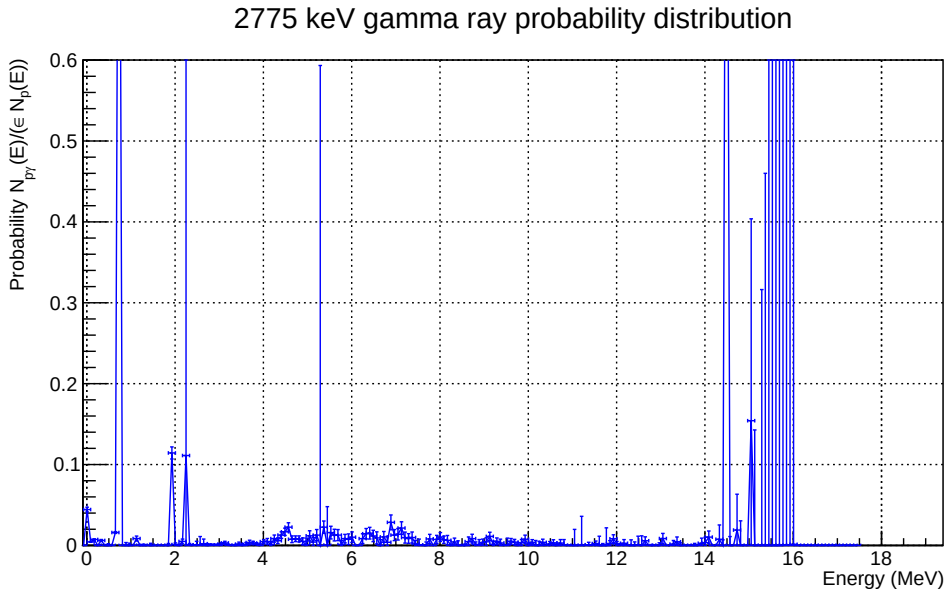

FIG. 44: Gamma ray probability distribution of the 2775.200 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXVI: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2775.200 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.000	0.001	-7.266
0.008	0.080	0.044	0.003	-7.186
0.088	0.080	0.004	0.001	-7.106
0.168	0.080	0.007	0.001	-7.026
0.248	0.080	0.000	0.001	-6.946
0.328	0.080	0.006	0.001	-6.866
0.408	0.080	0.000	0.000	-6.786
0.488	0.080	0.000	0.002	-6.706
0.568	0.080	0.000	0.000	-6.626
0.648	0.080	0.016	0.001	-6.546
0.728	0.080	1.180	381857.938	-6.466
0.808	0.080	0.000	0.000	-6.386
0.888	0.080	0.000	0.004	-6.306
0.968	0.080	0.000	0.003	-6.226
1.048	0.080	0.000	0.000	-6.146
1.128	0.080	0.009	0.003	-6.066
1.208	0.080	0.000	0.001	-5.986
1.288	0.080	0.000	0.002	-5.906
1.368	0.080	0.000	0.000	-5.826
1.448	0.080	0.000	0.003	-5.746
1.528	0.080	0.000	0.000	-5.666

Continued on next page

TABLE XXVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.000	-5.586
1.688	0.080	0.000	0.000	-5.506
1.768	0.080	0.000	0.000	-5.426
1.848	0.080	0.000	0.002	-5.346
1.928	0.080	0.114	0.007	-5.266
2.008	0.080	0.001	0.002	-5.186
2.088	0.080	0.000	0.001	-5.106
2.168	0.080	0.005	0.003	-5.026
2.248	0.080	0.111	48558.219	-4.946
2.328	0.080	0.001	0.002	-4.866
2.408	0.080	0.000	0.000	-4.786
2.488	0.080	0.001	0.004	-4.706
2.568	0.080	0.000	0.011	-4.626
2.648	0.080	0.002	0.006	-4.546
2.728	0.080	0.000	0.002	-4.466
2.808	0.080	0.000	0.002	-4.386
2.888	0.080	0.001	0.001	-4.306
2.968	0.080	0.000	0.001	-4.226
3.048	0.080	0.002	0.002	-4.146
3.128	0.080	0.003	0.002	-4.066
3.208	0.080	0.000	0.001	-3.986
3.288	0.080	0.000	0.000	-3.906
3.368	0.080	0.000	0.001	-3.826
3.448	0.080	0.002	0.002	-3.746
3.528	0.080	0.000	0.002	-3.666
3.608	0.080	0.001	0.003	-3.586
3.688	0.080	0.004	0.003	-3.506
3.768	0.080	0.003	0.002	-3.426
3.848	0.080	0.002	0.001	-3.346
3.928	0.080	0.000	0.000	-3.266
4.008	0.080	0.005	0.002	-3.186
4.088	0.080	0.005	0.004	-3.106
4.168	0.080	0.001	0.003	-3.026
4.248	0.080	0.008	0.004	-2.946
4.328	0.080	0.006	0.004	-2.866
4.408	0.080	0.013	0.004	-2.786
4.488	0.080	0.017	0.004	-2.706
4.568	0.080	0.023	0.005	-2.626
4.648	0.080	0.008	0.004	-2.546
4.728	0.080	0.008	0.004	-2.466
4.808	0.080	0.008	0.004	-2.386
4.888	0.080	0.005	0.004	-2.306
4.968	0.080	0.001	0.008	-2.226
5.048	0.080	0.012	0.006	-2.146
5.128	0.080	0.004	0.006	-2.066
5.208	0.080	0.013	0.007	-1.986
5.288	0.080	0.000	0.593	-1.906
5.368	0.080	0.023	0.008	-1.826
5.448	0.080	0.000	0.048	-1.746
5.528	0.080	0.016	0.008	-1.666
5.608	0.080	0.013	0.007	-1.586
5.688	0.080	0.013	0.007	-1.506
5.768	0.080	0.001	0.005	-1.426
5.848	0.080	0.008	0.005	-1.346
5.928	0.080	0.008	0.007	-1.266
6.008	0.080	0.010	0.007	-1.186
6.088	0.080	0.000	0.000	-1.106
6.168	0.080	0.000	0.000	-1.026
6.248	0.080	0.008	0.006	-0.946
6.328	0.080	0.014	0.006	-0.866
6.408	0.080	0.015	0.007	-0.786

Continued on next page

TABLE XXVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.012	0.007	-0.706
6.568	0.080	0.009	0.007	-0.626
6.648	0.080	0.000	0.007	-0.546
6.728	0.080	0.010	0.007	-0.466
6.808	0.080	0.004	0.007	-0.386
6.888	0.080	0.029	0.009	-0.306
6.968	0.080	0.013	0.007	-0.226
7.048	0.080	0.014	0.007	-0.146
7.128	0.080	0.022	0.008	-0.066
7.208	0.080	0.010	0.007	0.014
7.288	0.080	0.009	0.006	0.094
7.368	0.080	0.010	0.007	0.174
7.448	0.080	0.002	0.004	0.254
7.528	0.080	0.001	0.007	0.334
7.608	0.080	0.000	0.000	0.414
7.688	0.080	0.000	0.004	0.494
7.768	0.080	0.008	0.006	0.574
7.848	0.080	0.000	0.000	0.654
7.928	0.080	0.007	0.005	0.734
8.008	0.080	0.010	0.005	0.814
8.088	0.080	0.007	0.004	0.894
8.168	0.080	0.006	0.006	0.974
8.248	0.080	0.000	0.002	1.054
8.328	0.080	0.004	0.005	1.134
8.408	0.080	0.000	0.006	1.214
8.488	0.080	0.000	0.000	1.294
8.568	0.080	0.000	0.002	1.374
8.648	0.080	0.005	0.006	1.454
8.728	0.080	0.008	0.005	1.534
8.808	0.080	0.001	0.003	1.614
8.888	0.080	0.001	0.006	1.694
8.968	0.080	0.004	0.004	1.774
9.048	0.080	0.004	0.005	1.854
9.128	0.080	0.011	0.005	1.934
9.208	0.080	0.001	0.004	2.014
9.288	0.080	0.005	0.004	2.094
9.368	0.080	0.003	0.005	2.174
9.448	0.080	0.000	0.000	2.254
9.528	0.080	0.000	0.009	2.334
9.608	0.080	0.005	0.004	2.414
9.688	0.080	0.004	0.003	2.494
9.768	0.080	0.000	0.003	2.574
9.848	0.080	0.004	0.004	2.654
9.928	0.080	0.008	0.005	2.734
10.008	0.080	0.000	0.002	2.814
10.088	0.080	0.004	0.003	2.894
10.168	0.080	0.000	0.006	2.974
10.248	0.080	0.000	0.005	3.054
10.328	0.080	0.004	0.004	3.134
10.408	0.080	0.000	0.000	3.214
10.488	0.080	0.002	0.003	3.294
10.568	0.080	0.003	0.004	3.374
10.648	0.080	0.000	0.002	3.454
10.728	0.080	0.003	0.004	3.534
10.808	0.080	0.000	0.007	3.614
10.888	0.080	0.000	0.000	3.694
10.968	0.080	0.000	0.000	3.774
11.048	0.080	0.000	0.020	3.854
11.128	0.080	0.000	0.000	3.934
11.208	0.080	0.000	0.036	4.014
11.288	0.080	0.000	0.000	4.094

Continued on next page

TABLE XXVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.001	0.003	4.174
11.448	0.080	0.000	0.000	4.254
11.528	0.080	0.002	0.003	4.334
11.608	0.080	0.000	0.011	4.414
11.688	0.080	0.000	0.002	4.494
11.768	0.080	0.000	0.022	4.574
11.848	0.080	0.002	0.004	4.654
11.928	0.080	0.008	0.005	4.734
12.008	0.080	0.002	0.003	4.814
12.088	0.080	0.000	0.000	4.894
12.168	0.080	0.003	0.005	4.974
12.248	0.080	0.000	0.000	5.054
12.328	0.080	0.000	0.007	5.134
12.408	0.080	0.000	0.004	5.214
12.488	0.080	0.000	0.011	5.294
12.568	0.080	0.000	0.012	5.374
12.648	0.080	0.006	0.005	5.454
12.728	0.080	0.000	0.000	5.534
12.808	0.080	0.000	0.001	5.614
12.888	0.080	0.000	0.000	5.694
12.968	0.080	0.000	0.003	5.774
13.048	0.080	0.009	0.006	5.854
13.128	0.080	0.000	0.000	5.934
13.208	0.080	0.000	0.000	6.014
13.288	0.080	0.002	0.004	6.094
13.368	0.080	0.005	0.006	6.174
13.448	0.080	0.000	0.003	6.254
13.528	0.080	0.000	0.000	6.334
13.608	0.080	0.000	0.000	6.414
13.688	0.080	0.000	0.000	6.494
13.768	0.080	0.000	0.003	6.574
13.848	0.080	0.000	0.000	6.654
13.928	0.080	0.003	0.006	6.734
14.008	0.080	0.004	0.007	6.814
14.088	0.080	0.010	0.008	6.894
14.168	0.080	0.000	0.000	6.974
14.248	0.080	0.000	0.000	7.054
14.328	0.080	0.008	0.018	7.134
14.408	0.080	0.000	0.007	7.214
14.488	0.080	1.261	0.272	7.294
14.568	0.080	0.000	0.011	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.019	0.044	7.534
14.808	0.080	0.000	0.030	7.614
14.888	0.080	0.000	0.000	7.694
14.968	0.080	0.000	0.000	7.774
15.048	0.080	0.154	0.250	7.854
15.128	0.080	0.000	0.143	7.934
15.208	0.080	0.000	0.000	8.014
15.288	0.080	0.000	0.316	8.094
15.368	0.080	0.000	0.460	8.174
15.448	0.080	0.000	0.872	8.254
15.528	0.080	0.000	1.144	8.334
15.608	0.080	0.000	2.175	8.414
15.688	0.080	0.000	3.091	8.494
15.768	0.080	0.000	6.292	8.574
15.848	0.080	0.000	16.017	8.654
15.928	0.080	0.000	16.017	8.734
16.008	0.080	0.001	88.094	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXVI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

18. ^{91}Zr γ-ray 2902.300 keV

^{91}Zr nucleus
γ-ray observed 2902.300 keV
γ-ray originates in initial state at 2902.300 keV and goes to final state at 0.000 keV
Initial state is (7/2)+ and final state is 5/2+ transition is type M1
Internal conversion coefficent α is 1.000

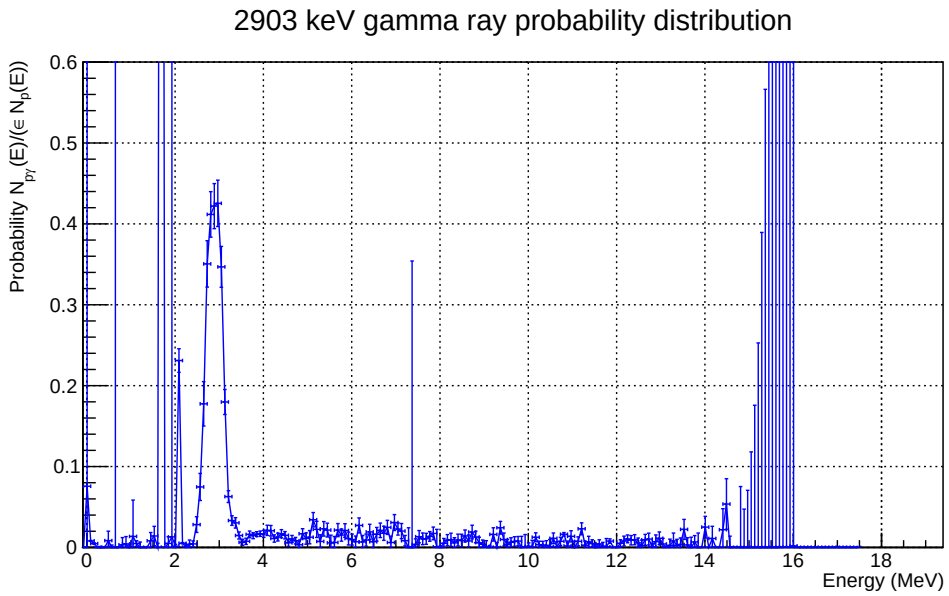

FIG. 45: Gamma ray probability distribution of the 2902.300 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXVII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 2902.300 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.000	0.001	-7.266
0.008	0.080	0.076	20572.705	-7.186
0.088	0.080	0.008	0.001	-7.106
0.168	0.080	0.005	0.001	-7.026
0.248	0.080	0.000	0.001	-6.946
0.328	0.080	0.000	0.001	-6.866
0.408	0.080	0.000	0.000	-6.786
0.488	0.080	0.009	0.012	-6.706
0.568	0.080	0.000	0.003	-6.626
0.648	0.080	0.000	874176.562	-6.546
0.728	0.080	0.000	0.000	-6.466
0.808	0.080	0.003	0.009	-6.386
0.888	0.080	0.004	0.009	-6.306
0.968	0.080	0.000	0.003	-6.226
1.048	0.080	0.014	0.045	-6.146
1.128	0.080	0.005	0.003	-6.066
1.208	0.080	0.000	0.007	-5.986
1.288	0.080	0.000	0.000	-5.906
1.368	0.080	0.000	0.000	-5.826
1.448	0.080	0.008	0.010	-5.746
1.528	0.080	0.014	0.012	-5.666

Continued on next page

TABLE XXVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.005	-5.586
1.688	0.080	2.521	0.190	-5.506
1.768	0.080	0.000	0.000	-5.426
1.848	0.080	0.005	0.008	-5.346
1.928	0.080	0.013	211674.312	-5.266
2.008	0.080	0.002	0.002	-5.186
2.088	0.080	0.231	0.015	-5.106
2.168	0.080	0.005	0.001	-5.026
2.248	0.080	0.000	0.003	-4.946
2.328	0.080	0.004	0.005	-4.866
2.408	0.080	0.004	0.004	-4.786
2.488	0.080	0.028	0.010	-4.706
2.568	0.080	0.075	0.017	-4.626
2.648	0.080	0.177	0.027	-4.546
2.728	0.080	0.350	0.029	-4.466
2.808	0.080	0.412	0.028	-4.386
2.888	0.080	0.422	0.028	-4.306
2.968	0.080	0.425	0.029	-4.226
3.048	0.080	0.347	0.025	-4.146
3.128	0.080	0.180	0.015	-4.066
3.208	0.080	0.063	0.007	-3.986
3.288	0.080	0.033	0.006	-3.906
3.368	0.080	0.030	0.006	-3.826
3.448	0.080	0.015	0.004	-3.746
3.528	0.080	0.006	0.004	-3.666
3.608	0.080	0.007	0.004	-3.586
3.688	0.080	0.016	0.004	-3.506
3.768	0.080	0.015	0.004	-3.426
3.848	0.080	0.016	0.003	-3.346
3.928	0.080	0.017	0.003	-3.266
4.008	0.080	0.017	0.004	-3.186
4.088	0.080	0.021	0.006	-3.106
4.168	0.080	0.021	0.007	-3.026
4.248	0.080	0.011	0.004	-2.946
4.328	0.080	0.013	0.005	-2.866
4.408	0.080	0.017	0.005	-2.786
4.488	0.080	0.015	0.005	-2.706
4.568	0.080	0.006	0.004	-2.626
4.648	0.080	0.011	0.004	-2.546
4.728	0.080	0.008	0.004	-2.466
4.808	0.080	0.003	0.005	-2.386
4.888	0.080	0.017	0.006	-2.306
4.968	0.080	0.011	0.007	-2.226
5.048	0.080	0.013	0.008	-2.146
5.128	0.080	0.034	0.009	-2.066
5.208	0.080	0.022	0.010	-1.986
5.288	0.080	0.007	0.008	-1.906
5.368	0.080	0.023	0.009	-1.826
5.448	0.080	0.022	0.009	-1.746
5.528	0.080	0.006	0.010	-1.666
5.608	0.080	0.006	0.007	-1.586
5.688	0.080	0.021	0.008	-1.506
5.768	0.080	0.015	0.008	-1.426
5.848	0.080	0.021	0.008	-1.346
5.928	0.080	0.011	0.008	-1.266
6.008	0.080	0.010	0.007	-1.186
6.088	0.080	0.007	0.007	-1.106
6.168	0.080	0.027	0.009	-1.026
6.248	0.080	0.007	0.008	-0.946
6.328	0.080	0.009	0.007	-0.866
6.408	0.080	0.019	0.009	-0.786

Continued on next page

TABLE XXVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.007	0.009	-0.706
6.568	0.080	0.016	0.008	-0.626
6.648	0.080	0.021	0.009	-0.546
6.728	0.080	0.018	0.009	-0.466
6.808	0.080	0.025	0.009	-0.386
6.888	0.080	0.006	0.008	-0.306
6.968	0.080	0.031	0.010	-0.226
7.048	0.080	0.023	0.008	-0.146
7.128	0.080	0.020	0.009	-0.066
7.208	0.080	0.008	0.006	0.014
7.288	0.080	0.000	0.024	0.094
7.368	0.080	0.000	0.354	0.174
7.448	0.080	0.004	0.007	0.254
7.528	0.080	0.013	0.008	0.334
7.608	0.080	0.011	0.007	0.414
7.688	0.080	0.011	0.007	0.494
7.768	0.080	0.014	0.006	0.574
7.848	0.080	0.017	0.008	0.654
7.928	0.080	0.001	0.022	0.734
8.008	0.080	0.000	0.002	0.814
8.088	0.080	0.005	0.006	0.894
8.168	0.080	0.009	0.007	0.974
8.248	0.080	0.009	0.008	1.054
8.328	0.080	0.006	0.006	1.134
8.408	0.080	0.009	0.007	1.214
8.488	0.080	0.009	0.008	1.294
8.568	0.080	0.014	0.007	1.374
8.648	0.080	0.008	0.007	1.454
8.728	0.080	0.019	0.008	1.534
8.808	0.080	0.013	0.007	1.614
8.888	0.080	0.006	0.007	1.694
8.968	0.080	0.004	0.005	1.774
9.048	0.080	0.001	0.007	1.854
9.128	0.080	0.000	0.002	1.934
9.208	0.080	0.016	0.008	2.014
9.288	0.080	0.000	0.006	2.094
9.368	0.080	0.024	0.008	2.174
9.448	0.080	0.010	0.008	2.254
9.528	0.080	0.003	0.007	2.334
9.608	0.080	0.006	0.006	2.414
9.688	0.080	0.007	0.006	2.494
9.768	0.080	0.008	0.006	2.574
9.848	0.080	0.000	0.014	2.654
9.928	0.080	0.001	0.015	2.734
10.008	0.080	0.001	0.004	2.814
10.088	0.080	0.000	0.008	2.894
10.168	0.080	0.013	0.005	2.974
10.248	0.080	0.004	0.004	3.054
10.328	0.080	0.002	0.005	3.134
10.408	0.080	0.003	0.006	3.214
10.488	0.080	0.001	0.009	3.294
10.568	0.080	0.011	0.007	3.374
10.648	0.080	0.001	0.006	3.454
10.728	0.080	0.008	0.005	3.534
10.808	0.080	0.016	0.002	3.614
10.888	0.080	0.002	0.006	3.694
10.968	0.080	0.014	0.007	3.774
11.048	0.080	0.000	0.008	3.854
11.128	0.080	0.008	0.006	3.934
11.208	0.080	0.023	0.007	4.014
11.288	0.080	0.003	0.005	4.094

Continued on next page

TABLE XXVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.007	0.007	4.174
11.448	0.080	0.005	0.005	4.254
11.528	0.080	0.000	0.003	4.334
11.608	0.080	0.004	0.005	4.414
11.688	0.080	0.002	0.005	4.494
11.768	0.080	0.001	0.010	4.574
11.848	0.080	0.008	0.003	4.654
11.928	0.080	0.000	0.000	4.734
12.008	0.080	0.000	0.000	4.814
12.088	0.080	0.005	0.004	4.894
12.168	0.080	0.008	0.006	4.974
12.248	0.080	0.011	0.005	5.054
12.328	0.080	0.009	0.006	5.134
12.408	0.080	0.009	0.006	5.214
12.488	0.080	0.006	0.006	5.294
12.568	0.080	0.002	0.007	5.374
12.648	0.080	0.009	0.007	5.454
12.728	0.080	0.010	0.007	5.534
12.808	0.080	0.001	0.004	5.614
12.888	0.080	0.007	0.008	5.694
12.968	0.080	0.011	0.008	5.774
13.048	0.080	0.004	0.007	5.854
13.128	0.080	0.000	0.000	5.934
13.208	0.080	0.003	0.008	6.014
13.288	0.080	0.008	0.010	6.094
13.368	0.080	0.003	0.007	6.174
13.448	0.080	0.004	0.008	6.254
13.528	0.080	0.022	0.012	6.334
13.608	0.080	0.003	0.009	6.414
13.688	0.080	0.000	0.013	6.494
13.768	0.080	0.007	0.008	6.574
13.848	0.080	0.000	0.018	6.654
13.928	0.080	0.000	0.000	6.734
14.008	0.080	0.025	0.013	6.814
14.088	0.080	0.000	0.000	6.894
14.168	0.080	0.011	0.015	6.974
14.248	0.080	0.000	0.000	7.054
14.328	0.080	0.000	0.000	7.134
14.408	0.080	0.022	0.026	7.214
14.488	0.080	0.054	0.031	7.294
14.568	0.080	0.000	0.014	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.000	0.000	7.534
14.808	0.080	0.000	0.075	7.614
14.888	0.080	0.000	0.047	7.694
14.968	0.080	0.000	0.071	7.774
15.048	0.080	0.000	0.118	7.854
15.128	0.080	0.000	0.176	7.934
15.208	0.080	0.000	0.253	8.014
15.288	0.080	0.000	0.389	8.094
15.368	0.080	0.000	0.566	8.174
15.448	0.080	0.000	1.074	8.254
15.528	0.080	0.000	1.408	8.334
15.608	0.080	0.000	2.678	8.414
15.688	0.080	0.000	3.805	8.494
15.768	0.080	0.000	7.747	8.574
15.848	0.080	0.000	19.719	8.654
15.928	0.080	0.000	19.719	8.734
16.008	0.080	0.002	108.452	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXVII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

19. ^{91}Zr γ-ray 3107.900 keV

^{91}Zr nucleus
γ-ray observed 3107.900 keV
γ-ray originates in initial state at 3107.900 keV and goes to final state at 0.000 keV
Initial state is 7/2+ and final state is 5/2+ transition is type M1
Internal conversion coefficent α is 1.000

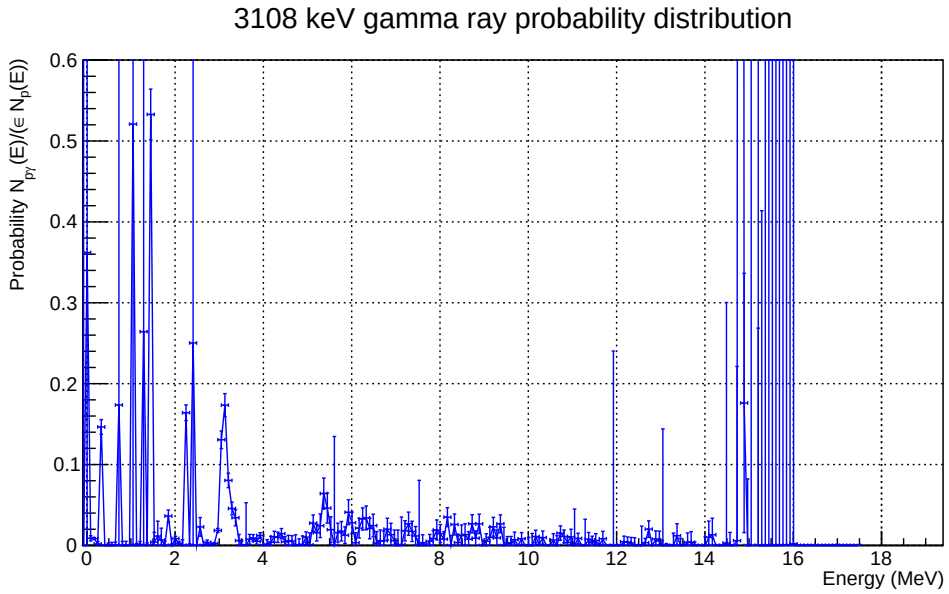

FIG. 46: Gamma ray probability distribution of the 3107.900 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXVIII: ^{92}Zr(p,d)^{91}Zr probability versus energy for 3107.900 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.000	138236.812	-7.266
0.008	0.080	0.362	55892.375	-7.186
0.088	0.080	0.009	0.003	-7.106
0.168	0.080	0.009	0.001	-7.026
0.248	0.080	0.002	0.003	-6.946
0.328	0.080	0.147	0.009	-6.866
0.408	0.080	0.000	0.000	-6.786
0.488	0.080	0.000	0.003	-6.706
0.568	0.080	0.000	0.004	-6.626
0.648	0.080	0.000	0.004	-6.546
0.728	0.080	0.174	1.059	-6.466
0.808	0.080	0.000	0.005	-6.386
0.888	0.080	0.000	0.005	-6.306
0.968	0.080	0.000	0.000	-6.226
1.048	0.080	0.521	1020675.125	-6.146
1.128	0.080	0.000	0.002	-6.066
1.208	0.080	0.001	0.004	-5.986
1.288	0.080	0.264	658487.875	-5.906
1.368	0.080	0.000	0.003	-5.826
1.448	0.080	0.533	0.031	-5.746
1.528	0.080	0.004	0.012	-5.666

Continued on next page

TABLE XXVIII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
1.608	0.080	0.012	0.018	-5.586
1.688	0.080	0.007	0.014	-5.506
1.768	0.080	0.000	0.005	-5.426
1.848	0.080	0.036	0.007	-5.346
1.928	0.080	0.000	0.002	-5.266
2.008	0.080	0.009	0.003	-5.186
2.088	0.080	0.003	0.002	-5.106
2.168	0.080	0.000	0.007	-5.026
2.248	0.080	0.164	0.010	-4.946
2.328	0.080	0.000	0.002	-4.866
2.408	0.080	0.250	286287.625	-4.786
2.488	0.080	0.000	0.000	-4.706
2.568	0.080	0.023	0.012	-4.626
2.648	0.080	0.000	0.000	-4.546
2.728	0.080	0.004	0.003	-4.466
2.808	0.080	0.000	0.000	-4.386
2.888	0.080	0.002	0.001	-4.306
2.968	0.080	0.019	0.003	-4.226
3.048	0.080	0.131	0.011	-4.146
3.128	0.080	0.174	0.014	-4.066
3.208	0.080	0.080	0.009	-3.986
3.288	0.080	0.046	0.008	-3.906
3.368	0.080	0.034	0.010	-3.826
3.448	0.080	0.006	0.008	-3.746
3.528	0.080	0.000	0.000	-3.666
3.608	0.080	0.000	0.053	-3.586
3.688	0.080	0.008	0.006	-3.506
3.768	0.080	0.009	0.004	-3.426
3.848	0.080	0.005	0.003	-3.346
3.928	0.080	0.012	0.003	-3.266
4.008	0.080	0.000	0.000	-3.186
4.088	0.080	0.002	0.006	-3.106
4.168	0.080	0.004	0.007	-3.026
4.248	0.080	0.011	0.007	-2.946
4.328	0.080	0.010	0.006	-2.866
4.408	0.080	0.015	0.006	-2.786
4.488	0.080	0.004	0.006	-2.706
4.568	0.080	0.005	0.007	-2.626
4.648	0.080	0.005	0.007	-2.546
4.728	0.080	0.000	0.013	-2.466
4.808	0.080	0.001	0.007	-2.386
4.888	0.080	0.001	0.011	-2.306
4.968	0.080	0.010	0.006	-2.226
5.048	0.080	0.001	0.015	-2.146
5.128	0.080	0.028	0.010	-2.066
5.208	0.080	0.016	0.010	-1.986
5.288	0.080	0.024	0.015	-1.906
5.368	0.080	0.064	0.019	-1.826
5.448	0.080	0.046	0.019	-1.746
5.528	0.080	0.020	0.016	-1.666
5.608	0.080	0.000	0.134	-1.586
5.688	0.080	0.016	0.012	-1.506
5.768	0.080	0.018	0.012	-1.426
5.848	0.080	0.013	0.010	-1.346
5.928	0.080	0.041	0.015	-1.266
6.008	0.080	0.028	0.013	-1.186
6.088	0.080	0.003	0.012	-1.106
6.168	0.080	0.021	0.012	-1.026
6.248	0.080	0.033	0.014	-0.946
6.328	0.080	0.034	0.015	-0.866
6.408	0.080	0.021	0.013	-0.786

Continued on next page

TABLE XXVIII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.024	0.014	-0.706
6.568	0.080	0.003	0.014	-0.626
6.648	0.080	0.006	0.013	-0.546
6.728	0.080	0.006	0.012	-0.466
6.808	0.080	0.020	0.014	-0.386
6.888	0.080	0.013	0.014	-0.306
6.968	0.080	0.006	0.013	-0.226
7.048	0.080	0.000	0.019	-0.146
7.128	0.080	0.001	0.034	-0.066
7.208	0.080	0.018	0.013	0.014
7.288	0.080	0.027	0.014	0.094
7.368	0.080	0.017	0.013	0.174
7.448	0.080	0.012	0.012	0.254
7.528	0.080	0.000	0.080	0.334
7.608	0.080	0.003	0.010	0.414
7.688	0.080	0.000	0.000	0.494
7.768	0.080	0.005	0.008	0.574
7.848	0.080	0.009	0.010	0.654
7.928	0.080	0.019	0.012	0.734
8.008	0.080	0.015	0.011	0.814
8.088	0.080	0.008	0.009	0.894
8.168	0.080	0.035	0.012	0.974
8.248	0.080	0.000	0.012	1.054
8.328	0.080	0.026	0.013	1.134
8.408	0.080	0.004	0.010	1.214
8.488	0.080	0.012	0.013	1.294
8.568	0.080	0.013	0.013	1.374
8.648	0.080	0.008	0.009	1.454
8.728	0.080	0.027	0.011	1.534
8.808	0.080	0.009	0.009	1.614
8.888	0.080	0.027	0.012	1.694
8.968	0.080	0.000	0.000	1.774
9.048	0.080	0.005	0.009	1.854
9.128	0.080	0.010	0.013	1.934
9.208	0.080	0.023	0.012	2.014
9.288	0.080	0.009	0.010	2.094
9.368	0.080	0.027	0.011	2.174
9.448	0.080	0.000	0.022	2.254
9.528	0.080	0.003	0.008	2.334
9.608	0.080	0.003	0.008	2.414
9.688	0.080	0.007	0.009	2.494
9.768	0.080	0.000	0.000	2.574
9.848	0.080	0.008	0.008	2.654
9.928	0.080	0.000	0.000	2.734
10.008	0.080	0.000	0.010	2.814
10.088	0.080	0.000	0.015	2.894
10.168	0.080	0.011	0.008	2.974
10.248	0.080	0.001	0.009	3.054
10.328	0.080	0.010	0.008	3.134
10.408	0.080	0.000	0.000	3.214
10.488	0.080	0.000	0.000	3.294
10.568	0.080	0.007	0.008	3.374
10.648	0.080	0.000	0.012	3.454
10.728	0.080	0.015	0.009	3.534
10.808	0.080	0.011	0.008	3.614
10.888	0.080	0.003	0.007	3.694
10.968	0.080	0.010	0.009	3.774
11.048	0.080	0.000	0.045	3.854
11.128	0.080	0.009	0.006	3.934
11.208	0.080	0.000	0.000	4.014
11.288	0.080	0.000	0.032	4.094

Continued on next page

TABLE XXVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.008	0.008	4.174
11.448	0.080	0.003	0.008	4.254
11.528	0.080	0.006	0.008	4.334
11.608	0.080	0.000	0.003	4.414
11.688	0.080	0.008	0.009	4.494
11.768	0.080	0.000	0.000	4.574
11.848	0.080	0.000	0.000	4.654
11.928	0.080	0.000	0.240	4.734
12.008	0.080	0.000	0.000	4.814
12.088	0.080	0.000	0.000	4.894
12.168	0.080	0.004	0.007	4.974
12.248	0.080	0.004	0.006	5.054
12.328	0.080	0.003	0.007	5.134
12.408	0.080	0.000	0.009	5.214
12.488	0.080	0.000	0.000	5.294
12.568	0.080	0.000	0.024	5.374
12.648	0.080	0.003	0.005	5.454
12.728	0.080	0.020	0.010	5.534
12.808	0.080	0.000	0.000	5.614
12.888	0.080	0.008	0.010	5.694
12.968	0.080	0.006	0.012	5.774
13.048	0.080	0.000	0.144	5.854
13.128	0.080	0.000	0.002	5.934
13.208	0.080	0.000	0.000	6.014
13.288	0.080	0.000	0.015	6.094
13.368	0.080	0.012	0.015	6.174
13.448	0.080	0.000	0.009	6.254
13.528	0.080	0.000	0.000	6.334
13.608	0.080	0.004	0.012	6.414
13.688	0.080	0.004	0.013	6.494
13.768	0.080	0.000	0.004	6.574
13.848	0.080	0.000	0.000	6.654
13.928	0.080	0.000	0.000	6.734
14.008	0.080	0.000	0.011	6.814
14.088	0.080	0.010	0.020	6.894
14.168	0.080	0.013	0.020	6.974
14.248	0.080	0.000	0.000	7.054
14.328	0.080	0.000	0.000	7.134
14.408	0.080	0.000	0.000	7.214
14.488	0.080	0.003	0.297	7.294
14.568	0.080	0.000	0.016	7.374
14.648	0.080	0.000	0.000	7.454
14.728	0.080	0.006	0.215	7.534
14.808	0.080	7.433	1.204	7.614
14.888	0.080	0.176	0.160	7.694
14.968	0.080	0.000	0.082	7.774
15.048	0.080	0.000	0.000	7.854
15.128	0.080	451.484	26.521	7.934
15.208	0.080	0.000	0.269	8.014
15.288	0.080	0.000	0.414	8.094
15.368	0.080	0.000	0.602	8.174
15.448	0.080	0.000	1.141	8.254
15.528	0.080	0.000	1.497	8.334
15.608	0.080	0.000	2.845	8.414
15.688	0.080	0.000	4.043	8.494
15.768	0.080	0.000	8.231	8.574
15.848	0.080	0.000	20.952	8.654
15.928	0.080	0.000	20.952	8.734
16.008	0.080	0.002	115.236	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

20. ^{91}Zr γ-ray 3704.000 keV

^{91}Zr nucleus
γ-ray observed 3704.000 keV
γ-ray originates in initial state at 3704.000 keV and goes to final state at 0.000 keV
Initial state is 7/2+ and final state is 5/2+ transition is type E1
Internal conversion coefficent α is 1.000

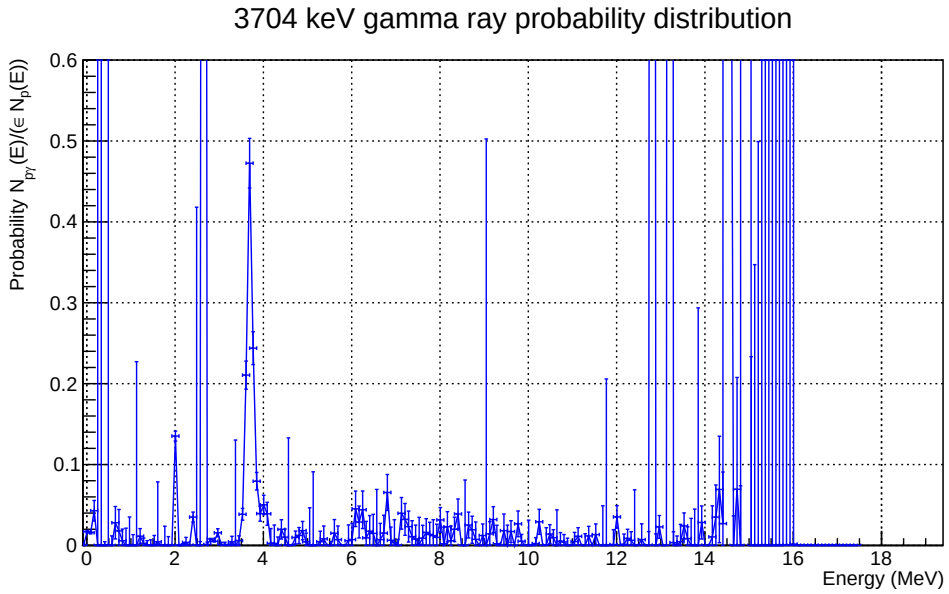

FIG. 47: Gamma ray probability distribution of the 3704.000 keV gamma ray from the ^{92}Zr(p,d)^{91}Zr reaction.

TABLE XXIX: ^{92}Zr(p,d)^{91}Zr probability versus energy for 3704.000 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.000	0.003	-7.266
0.008	0.080	0.017	0.001	-7.186
0.088	0.080	0.016	0.002	-7.106
0.168	0.080	0.043	0.013	-7.026
0.248	0.080	0.000	971426.438	-6.946
0.328	0.080	0.000	1930153.125	-6.866
0.408	0.080	0.000	0.005	-6.786
0.488	0.080	0.000	3753221.250	-6.706
0.568	0.080	0.000	0.012	-6.626
0.648	0.080	0.028	0.020	-6.546
0.728	0.080	0.018	0.026	-6.466
0.808	0.080	0.006	0.014	-6.386
0.888	0.080	0.000	0.021	-6.306
0.968	0.080	0.000	0.035	-6.226
1.048	0.080	0.000	0.013	-6.146
1.128	0.080	0.000	0.227	-6.066
1.208	0.080	0.011	0.009	-5.986
1.288	0.080	0.003	0.006	-5.906
1.368	0.080	0.000	0.006	-5.826
1.448	0.080	0.000	0.007	-5.746
1.528	0.080	0.000	0.012	-5.666

Continued on next page

TABLE XXIX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
1.608	0.080	0.004	0.074	-5.586
1.688	0.080	0.000	0.000	-5.506
1.768	0.080	0.000	0.024	-5.426
1.848	0.080	0.000	0.011	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.135	0.006	-5.186
2.088	0.080	0.000	0.001	-5.106
2.168	0.080	0.000	0.002	-5.026
2.248	0.080	0.004	0.006	-4.946
2.328	0.080	0.000	0.000	-4.866
2.408	0.080	0.035	0.006	-4.786
2.488	0.080	0.000	0.418	-4.706
2.568	0.080	0.000	0.005	-4.626
2.648	0.080	4.045	0.177	-4.546
2.728	0.080	0.001	0.003	-4.466
2.808	0.080	0.008	0.001	-4.386
2.888	0.080	0.005	0.001	-4.306
2.968	0.080	0.016	0.005	-4.226
3.048	0.080	0.001	0.003	-4.146
3.128	0.080	0.001	0.003	-4.066
3.208	0.080	0.000	0.000	-3.986
3.288	0.080	0.004	0.007	-3.906
3.368	0.080	0.000	0.130	-3.826
3.448	0.080	0.006	0.006	-3.746
3.528	0.080	0.038	0.007	-3.666
3.608	0.080	0.211	0.017	-3.586
3.688	0.080	0.472	0.031	-3.506
3.768	0.080	0.244	0.020	-3.426
3.848	0.080	0.079	0.011	-3.346
3.928	0.080	0.039	0.009	-3.266
4.008	0.080	0.050	0.012	-3.186
4.088	0.080	0.039	0.014	-3.106
4.168	0.080	0.003	0.018	-3.026
4.248	0.080	0.003	0.023	-2.946
4.328	0.080	0.000	0.010	-2.866
4.408	0.080	0.020	0.012	-2.786
4.488	0.080	0.010	0.010	-2.706
4.568	0.080	0.000	0.133	-2.626
4.648	0.080	0.000	0.000	-2.546
4.728	0.080	0.010	0.008	-2.466
4.808	0.080	0.012	0.010	-2.386
4.888	0.080	0.018	0.011	-2.306
4.968	0.080	0.004	0.011	-2.226
5.048	0.080	0.000	0.047	-2.146
5.128	0.080	0.000	0.091	-2.066
5.208	0.080	0.000	0.000	-1.986
5.288	0.080	0.004	0.013	-1.906
5.368	0.080	0.008	0.016	-1.826
5.448	0.080	0.000	0.000	-1.746
5.528	0.080	0.000	0.005	-1.666
5.608	0.080	0.015	0.017	-1.586
5.688	0.080	0.007	0.017	-1.506
5.768	0.080	0.000	0.000	-1.426
5.848	0.080	0.000	0.000	-1.346
5.928	0.080	0.006	0.019	-1.266
6.008	0.080	0.007	0.020	-1.186
6.088	0.080	0.045	0.022	-1.106
6.168	0.080	0.029	0.020	-1.026
6.248	0.080	0.044	0.023	-0.946
6.328	0.080	0.009	0.020	-0.866
6.408	0.080	0.018	0.019	-0.786

Continued on next page

TABLE XXIX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.015	0.023	-0.706
6.568	0.080	0.000	0.069	-0.626
6.648	0.080	0.007	0.020	-0.546
6.728	0.080	0.015	0.022	-0.466
6.808	0.080	0.065	0.022	-0.386
6.888	0.080	0.006	0.016	-0.306
6.968	0.080	0.003	0.028	-0.226
7.048	0.080	0.000	0.007	-0.146
7.128	0.080	0.040	0.020	-0.066
7.208	0.080	0.032	0.020	0.014
7.288	0.080	0.023	0.019	0.094
7.368	0.080	0.011	0.020	0.174
7.448	0.080	0.008	0.017	0.254
7.528	0.080	0.001	0.033	0.334
7.608	0.080	0.009	0.016	0.414
7.688	0.080	0.016	0.017	0.494
7.768	0.080	0.014	0.015	0.574
7.848	0.080	0.012	0.020	0.654
7.928	0.080	0.010	0.016	0.734
8.008	0.080	0.032	0.015	0.814
8.088	0.080	0.002	0.021	0.894
8.168	0.080	0.023	0.019	0.974
8.248	0.080	0.006	0.018	1.054
8.328	0.080	0.020	0.015	1.134
8.408	0.080	0.039	0.019	1.214
8.488	0.080	0.000	0.000	1.294
8.568	0.080	0.000	0.081	1.374
8.648	0.080	0.025	0.016	1.454
8.728	0.080	0.019	0.017	1.534
8.808	0.080	0.007	0.021	1.614
8.888	0.080	0.000	0.000	1.694
8.968	0.080	0.012	0.014	1.774
9.048	0.080	0.000	0.502	1.854
9.128	0.080	0.014	0.015	1.934
9.208	0.080	0.032	0.016	2.014
9.288	0.080	0.002	0.023	2.094
9.368	0.080	0.000	0.000	2.174
9.448	0.080	0.018	0.021	2.254
9.528	0.080	0.000	0.025	2.334
9.608	0.080	0.017	0.013	2.414
9.688	0.080	0.000	0.000	2.494
9.768	0.080	0.027	0.016	2.574
9.848	0.080	0.005	0.008	2.654
9.928	0.080	0.000	0.000	2.734
10.008	0.080	0.000	0.031	2.814
10.088	0.080	0.000	0.000	2.894
10.168	0.080	0.002	0.007	2.974
10.248	0.080	0.029	0.015	3.054
10.328	0.080	0.000	0.000	3.134
10.408	0.080	0.001	0.021	3.214
10.488	0.080	0.014	0.012	3.294
10.568	0.080	0.010	0.010	3.374
10.648	0.080	0.000	0.044	3.454
10.728	0.080	0.005	0.011	3.534
10.808	0.080	0.004	0.009	3.614
10.888	0.080	0.000	0.009	3.694
10.968	0.080	0.000	0.000	3.774
11.048	0.080	0.005	0.011	3.854
11.128	0.080	0.011	0.011	3.934
11.208	0.080	0.000	0.000	4.014
11.288	0.080	0.000	0.014	4.094

Continued on next page

TABLE XXIX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
11.368	0.080	0.012	0.012	4.174
11.448	0.080	0.000	0.000	4.254
11.528	0.080	0.013	0.013	4.334
11.608	0.080	0.000	0.000	4.414
11.688	0.080	0.000	0.049	4.494
11.768	0.080	0.000	0.206	4.574
11.848	0.080	0.000	0.000	4.654
11.928	0.080	0.001	0.018	4.734
12.008	0.080	0.035	0.014	4.814
12.088	0.080	0.000	0.000	4.894
12.168	0.080	0.001	0.013	4.974
12.248	0.080	0.009	0.011	5.054
12.328	0.080	0.006	0.011	5.134
12.408	0.080	0.000	0.069	5.214
12.488	0.080	0.000	0.000	5.294
12.568	0.080	0.007	0.020	5.374
12.648	0.080	0.000	0.000	5.454
12.728	0.080	0.000	0.017	5.534
12.808	0.080	6.612	0.290	5.614
12.888	0.080	0.000	0.014	5.694
12.968	0.080	0.023	0.014	5.774
13.048	0.080	0.000	0.000	5.854
13.128	0.080	0.000	0.000	5.934
13.208	0.080	8.000	0.351	6.014
13.288	0.080	0.004	0.013	6.094
13.368	0.080	0.000	0.012	6.174
13.448	0.080	0.005	0.021	6.254
13.528	0.080	0.024	0.016	6.334
13.608	0.080	0.008	0.015	6.414
13.688	0.080	0.000	0.033	6.494
13.768	0.080	0.000	0.045	6.574
13.848	0.080	0.000	0.294	6.654
13.928	0.080	0.028	0.020	6.734
14.008	0.080	0.000	0.000	6.814
14.088	0.080	0.000	0.000	6.894
14.168	0.080	0.010	0.038	6.974
14.248	0.080	0.035	0.040	7.054
14.328	0.080	0.069	0.066	7.134
14.408	0.080	0.027	0.064	7.214
14.488	0.080	58.213	2.554	7.294
14.568	0.080	1.276	0.086	7.374
14.648	0.080	0.000	0.037	7.454
14.728	0.080	0.069	0.138	7.534
14.808	0.080	0.000	0.074	7.614
14.888	0.080	101.518	85.909	7.694
14.968	0.080	14.005	75.309	7.774
15.048	0.080	0.000	0.233	7.854
15.128	0.080	0.000	0.347	7.934
15.208	0.080	0.000	0.499	8.014
15.288	0.080	0.000	0.769	8.094
15.368	0.080	0.000	1.139	8.174
15.448	0.080	0.000	2.121	8.254
15.528	0.080	0.000	2.782	8.334
15.608	0.080	0.000	5.289	8.414
15.688	0.080	0.000	7.515	8.494
15.768	0.080	0.000	15.299	8.574
15.848	0.080	0.000	38.943	8.654
15.928	0.080	0.000	38.943	8.734
16.008	0.080	0.002	214.184	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXIX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

21. ^{90}Zr γ-ray 141.178 keV

^{90}Zr nucleus
γ-ray observed 141.178 keV
γ-ray originates in initial state at 3589.420 keV and goes to final state at 3448.232 keV
Initial state is 8+ and final state is 6+ transition is type E2
Internal conversion coefficent α is 1.316

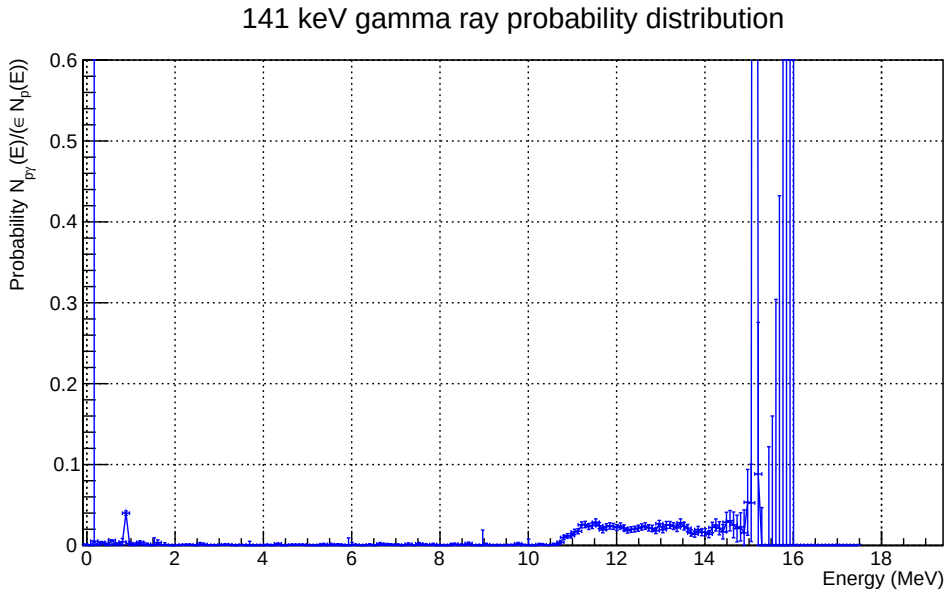

FIG. 48: Gamma ray probability distribution of the 141.178 keV gamma ray from the ^{92}Zr(p,dn)^{90}Zr reaction.

TABLE XXX: ^{92}Zr(p,dn)^{90}Zr probability versus energy for 141.178 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.001	0.001	-7.266
0.008	0.080	0.001	0.000	-7.186
0.088	0.080	0.000	0.000	-7.106
0.168	0.080	0.005	4991.217	-7.026
0.248	0.080	0.000	0.001	-6.946
0.328	0.080	0.004	0.001	-6.866
0.408	0.080	0.002	0.002	-6.786
0.488	0.080	0.000	0.000	-6.706
0.568	0.080	0.006	0.001	-6.626
0.648	0.080	0.002	0.002	-6.546
0.728	0.080	0.001	0.002	-6.466
0.808	0.080	0.004	0.004	-6.386
0.888	0.080	0.040	0.003	-6.306
0.968	0.080	0.002	0.002	-6.226
1.048	0.080	0.000	0.003	-6.146
1.128	0.080	0.001	0.002	-6.066
1.208	0.080	0.004	0.002	-5.986
1.288	0.080	0.000	0.004	-5.906
1.368	0.080	0.001	0.002	-5.826
1.448	0.080	0.000	0.001	-5.746
1.528	0.080	0.000	0.009	-5.666

Continued on next page

TABLE XXX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.004	0.003	-5.586
1.688	0.080	0.000	0.000	-5.506
1.768	0.080	0.000	0.003	-5.426
1.848	0.080	0.000	0.000	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.000	0.000	-5.186
2.088	0.080	0.000	0.001	-5.106
2.168	0.080	0.001	0.001	-5.026
2.248	0.080	0.001	0.001	-4.946
2.328	0.080	0.001	0.001	-4.866
2.408	0.080	0.000	0.000	-4.786
2.488	0.080	0.000	0.001	-4.706
2.568	0.080	0.002	0.002	-4.626
2.648	0.080	0.001	0.002	-4.546
2.728	0.080	0.000	0.000	-4.466
2.808	0.080	0.000	0.001	-4.386
2.888	0.080	0.000	0.000	-4.306
2.968	0.080	0.000	0.000	-4.226
3.048	0.080	0.001	0.001	-4.146
3.128	0.080	0.001	0.001	-4.066
3.208	0.080	0.001	0.001	-3.986
3.288	0.080	0.000	0.000	-3.906
3.368	0.080	0.000	0.001	-3.826
3.448	0.080	0.000	0.001	-3.746
3.528	0.080	0.001	0.000	-3.666
3.608	0.080	0.000	0.000	-3.586
3.688	0.080	0.000	0.005	-3.506
3.768	0.080	0.000	0.000	-3.426
3.848	0.080	0.000	0.000	-3.346
3.928	0.080	0.000	0.000	-3.266
4.008	0.080	0.000	0.001	-3.186
4.088	0.080	0.000	0.001	-3.106
4.168	0.080	0.000	0.001	-3.026
4.248	0.080	0.000	0.001	-2.946
4.328	0.080	0.002	0.001	-2.866
4.408	0.080	0.000	0.000	-2.786
4.488	0.080	0.000	0.000	-2.706
4.568	0.080	0.000	0.000	-2.626
4.648	0.080	0.001	0.001	-2.546
4.728	0.080	0.001	0.001	-2.466
4.808	0.080	0.000	0.001	-2.386
4.888	0.080	0.001	0.001	-2.306
4.968	0.080	0.000	0.000	-2.226
5.048	0.080	0.000	0.000	-2.146
5.128	0.080	0.000	0.001	-2.066
5.208	0.080	0.000	0.000	-1.986
5.288	0.080	0.000	0.002	-1.906
5.368	0.080	0.001	0.002	-1.826
5.448	0.080	0.000	0.000	-1.746
5.528	0.080	0.001	0.002	-1.666
5.608	0.080	0.000	0.001	-1.586
5.688	0.080	0.001	0.001	-1.506
5.768	0.080	0.000	0.002	-1.426
5.848	0.080	0.000	0.001	-1.346
5.928	0.080	0.000	0.009	-1.266
6.008	0.080	0.000	0.004	-1.186
6.088	0.080	0.000	0.001	-1.106
6.168	0.080	0.000	0.000	-1.026
6.248	0.080	0.000	0.001	-0.946
6.328	0.080	0.000	0.000	-0.866
6.408	0.080	0.001	0.002	-0.786

Continued on next page

TABLE XXX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.000	0.001	-0.706
6.568	0.080	0.000	0.000	-0.626
6.648	0.080	0.002	0.002	-0.546
6.728	0.080	0.001	0.001	-0.466
6.808	0.080	0.000	0.002	-0.386
6.888	0.080	0.001	0.002	-0.306
6.968	0.080	0.000	0.000	-0.226
7.048	0.080	0.001	0.001	-0.146
7.128	0.080	0.000	0.000	-0.066
7.208	0.080	0.000	0.000	0.014
7.288	0.080	0.002	0.001	0.094
7.368	0.080	0.000	0.000	0.174
7.448	0.080	0.000	0.000	0.254
7.528	0.080	0.002	0.001	0.334
7.608	0.080	0.001	0.001	0.414
7.688	0.080	0.001	0.001	0.494
7.768	0.080	0.000	0.000	0.574
7.848	0.080	0.001	0.002	0.654
7.928	0.080	0.000	0.001	0.734
8.008	0.080	0.000	0.001	0.814
8.088	0.080	0.000	0.000	0.894
8.168	0.080	0.000	0.000	0.974
8.248	0.080	0.000	0.002	1.054
8.328	0.080	0.002	0.001	1.134
8.408	0.080	0.000	0.000	1.214
8.488	0.080	0.001	0.001	1.294
8.568	0.080	0.000	0.000	1.374
8.648	0.080	0.002	0.002	1.454
8.728	0.080	0.000	0.000	1.534
8.808	0.080	0.000	0.000	1.614
8.888	0.080	0.000	0.001	1.694
8.968	0.080	0.000	0.019	1.774
9.048	0.080	0.001	0.002	1.854
9.128	0.080	0.000	0.000	1.934
9.208	0.080	0.000	0.000	2.014
9.288	0.080	0.000	0.001	2.094
9.368	0.080	0.000	0.000	2.174
9.448	0.080	0.000	0.000	2.254
9.528	0.080	0.000	0.000	2.334
9.608	0.080	0.000	0.001	2.414
9.688	0.080	0.000	0.001	2.494
9.768	0.080	0.002	0.002	2.574
9.848	0.080	0.000	0.002	2.654
9.928	0.080	0.000	0.001	2.734
10.008	0.080	0.000	0.008	2.814
10.088	0.080	0.000	0.000	2.894
10.168	0.080	0.000	0.000	2.974
10.248	0.080	0.001	0.002	3.054
10.328	0.080	0.001	0.001	3.134
10.408	0.080	0.000	0.000	3.214
10.488	0.080	0.000	0.000	3.294
10.568	0.080	0.001	0.002	3.374
10.648	0.080	0.001	0.001	3.454
10.728	0.080	0.004	0.002	3.534
10.808	0.080	0.010	0.003	3.614
10.888	0.080	0.012	0.003	3.694
10.968	0.080	0.012	0.003	3.774
11.048	0.080	0.017	0.003	3.854
11.128	0.080	0.018	0.003	3.934
11.208	0.080	0.025	0.004	4.014
11.288	0.080	0.026	0.004	4.094

Continued on next page

TABLE XXX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.023	0.004	4.174
11.448	0.080	0.024	0.004	4.254
11.528	0.080	0.029	0.004	4.334
11.608	0.080	0.024	0.004	4.414
11.688	0.080	0.019	0.004	4.494
11.768	0.080	0.023	0.004	4.574
11.848	0.080	0.024	0.004	4.654
11.928	0.080	0.023	0.004	4.734
12.008	0.080	0.022	0.004	4.814
12.088	0.080	0.024	0.004	4.894
12.168	0.080	0.022	0.004	4.974
12.248	0.080	0.018	0.003	5.054
12.328	0.080	0.020	0.003	5.134
12.408	0.080	0.020	0.003	5.214
12.488	0.080	0.021	0.004	5.294
12.568	0.080	0.023	0.004	5.374
12.648	0.080	0.024	0.004	5.454
12.728	0.080	0.022	0.004	5.534
12.808	0.080	0.021	0.004	5.614
12.888	0.080	0.018	0.003	5.694
12.968	0.080	0.027	0.004	5.774
13.048	0.080	0.019	0.004	5.854
13.128	0.080	0.025	0.004	5.934
13.208	0.080	0.025	0.004	6.014
13.288	0.080	0.024	0.004	6.094
13.368	0.080	0.022	0.004	6.174
13.448	0.080	0.028	0.005	6.254
13.528	0.080	0.024	0.005	6.334
13.608	0.080	0.021	0.004	6.414
13.688	0.080	0.015	0.004	6.494
13.768	0.080	0.014	0.004	6.574
13.848	0.080	0.020	0.004	6.654
13.928	0.080	0.016	0.004	6.734
14.008	0.080	0.016	0.004	6.814
14.088	0.080	0.014	0.004	6.894
14.168	0.080	0.022	0.006	6.974
14.248	0.080	0.025	0.007	7.054
14.328	0.080	0.021	0.008	7.134
14.408	0.080	0.017	0.009	7.214
14.488	0.080	0.029	0.012	7.294
14.568	0.080	0.031	0.013	7.374
14.648	0.080	0.025	0.016	7.454
14.728	0.080	0.021	0.017	7.534
14.808	0.080	0.023	0.017	7.614
14.888	0.080	0.016	0.028	7.694
14.968	0.080	0.053	0.041	7.774
15.048	0.080	0.053	0.048	7.854
15.128	0.080	4.264	0.586	7.934
15.208	0.080	0.088	0.187	8.014
15.288	0.080	0.000	0.047	8.094
15.368	0.080	0.000	0.000	8.174
15.448	0.080	0.000	0.122	8.254
15.528	0.080	0.000	0.160	8.334
15.608	0.080	0.000	0.304	8.414
15.688	0.080	0.000	0.432	8.494
15.768	0.080	0.000	0.880	8.574
15.848	0.080	0.000	2.240	8.654
15.928	0.080	0.000	2.240	8.734
16.008	0.080	0.000	12.320	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

22. ^{90}Zr γ-ray 420.280 keV

^{90}Zr nucleus
γ-ray observed 420.280 keV
γ-ray originates in initial state at 2739.300 keV and goes to final state at 2319.000 keV
Initial state is (4)- and final state is 5- transition is type M1
Internal conversion coefficent α is 1.000

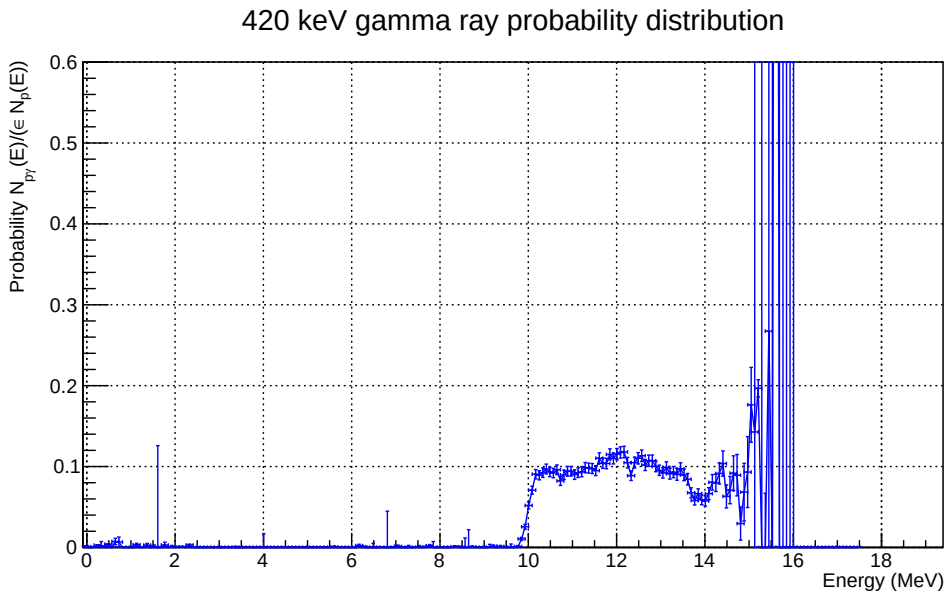

FIG. 49: Gamma ray probability distribution of the 420.280 keV gamma ray from the ^{92}Zr(p,dn)^{90}Zr reaction.

TABLE XXXI: ^{92}Zr(p,dn)^{90}Zr probability versus energy for 420.280 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.002	0.000	-7.266
0.008	0.080	0.001	0.002	-7.186
0.088	0.080	0.000	0.000	-7.106
0.168	0.080	0.001	0.000	-7.026
0.248	0.080	0.003	0.000	-6.946
0.328	0.080	0.002	0.005	-6.866
0.408	0.080	0.001	0.001	-6.786
0.488	0.080	0.004	0.001	-6.706
0.568	0.080	0.000	0.001	-6.626
0.648	0.080	0.007	0.004	-6.546
0.728	0.080	0.007	0.006	-6.466
0.808	0.080	0.000	0.000	-6.386
0.888	0.080	0.000	0.000	-6.306
0.968	0.080	0.000	0.000	-6.226
1.048	0.080	0.000	0.001	-6.146
1.128	0.080	0.003	0.002	-6.066
1.208	0.080	0.000	0.000	-5.986
1.288	0.080	0.000	0.000	-5.906
1.368	0.080	0.003	0.002	-5.826
1.448	0.080	0.000	0.002	-5.746
1.528	0.080	0.000	0.003	-5.666

Continued on next page

TABLE XXXI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.126	-5.586
1.688	0.080	0.000	0.000	-5.506
1.768	0.080	0.003	0.003	-5.426
1.848	0.080	0.000	0.000	-5.346
1.928	0.080	0.001	0.002	-5.266
2.008	0.080	0.000	0.001	-5.186
2.088	0.080	0.000	0.001	-5.106
2.168	0.080	0.001	0.001	-5.026
2.248	0.080	0.000	0.000	-4.946
2.328	0.080	0.003	0.001	-4.866
2.408	0.080	0.000	0.000	-4.786
2.488	0.080	0.000	0.001	-4.706
2.568	0.080	0.000	0.000	-4.626
2.648	0.080	0.000	0.000	-4.546
2.728	0.080	0.000	0.000	-4.466
2.808	0.080	0.000	0.000	-4.386
2.888	0.080	0.000	0.000	-4.306
2.968	0.080	0.000	0.000	-4.226
3.048	0.080	0.000	0.000	-4.146
3.128	0.080	0.000	0.000	-4.066
3.208	0.080	0.000	0.000	-3.986
3.288	0.080	0.000	0.000	-3.906
3.368	0.080	0.000	0.001	-3.826
3.448	0.080	0.000	0.000	-3.746
3.528	0.080	0.000	0.000	-3.666
3.608	0.080	0.000	0.000	-3.586
3.688	0.080	0.000	0.000	-3.506
3.768	0.080	0.000	0.000	-3.426
3.848	0.080	0.000	0.000	-3.346
3.928	0.080	0.000	0.000	-3.266
4.008	0.080	0.000	0.017	-3.186
4.088	0.080	0.000	0.000	-3.106
4.168	0.080	0.000	0.000	-3.026
4.248	0.080	0.000	0.000	-2.946
4.328	0.080	0.000	0.000	-2.866
4.408	0.080	0.000	0.000	-2.786
4.488	0.080	0.000	0.000	-2.706
4.568	0.080	0.000	0.000	-2.626
4.648	0.080	0.000	0.000	-2.546
4.728	0.080	0.000	0.000	-2.466
4.808	0.080	0.000	0.000	-2.386
4.888	0.080	0.000	0.000	-2.306
4.968	0.080	0.000	0.000	-2.226
5.048	0.080	0.000	0.000	-2.146
5.128	0.080	0.000	0.000	-2.066
5.208	0.080	0.000	0.000	-1.986
5.288	0.080	0.000	0.000	-1.906
5.368	0.080	0.000	0.000	-1.826
5.448	0.080	0.000	0.000	-1.746
5.528	0.080	0.000	0.000	-1.666
5.608	0.080	0.000	0.001	-1.586
5.688	0.080	0.000	0.000	-1.506
5.768	0.080	0.000	0.000	-1.426
5.848	0.080	0.000	0.000	-1.346
5.928	0.080	0.000	0.000	-1.266
6.008	0.080	0.000	0.000	-1.186
6.088	0.080	0.000	0.000	-1.106
6.168	0.080	0.002	0.002	-1.026
6.248	0.080	0.001	0.001	-0.946
6.328	0.080	0.000	0.001	-0.866
6.408	0.080	0.000	0.000	-0.786

Continued on next page

TABLE XXXI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.000	0.005	-0.706
6.568	0.080	0.000	0.001	-0.626
6.648	0.080	0.000	0.000	-0.546
6.728	0.080	0.000	0.000	-0.466
6.808	0.080	0.000	0.045	-0.386
6.888	0.080	0.000	0.001	-0.306
6.968	0.080	0.000	0.000	-0.226
7.048	0.080	0.001	0.002	-0.146
7.128	0.080	0.000	0.001	-0.066
7.208	0.080	0.000	0.001	0.014
7.288	0.080	0.000	0.002	0.094
7.368	0.080	0.000	0.000	0.174
7.448	0.080	0.000	0.000	0.254
7.528	0.080	0.000	0.002	0.334
7.608	0.080	0.000	0.000	0.414
7.688	0.080	0.001	0.001	0.494
7.768	0.080	0.002	0.001	0.574
7.848	0.080	0.000	0.007	0.654
7.928	0.080	0.000	0.000	0.734
8.008	0.080	0.000	0.000	0.814
8.088	0.080	0.000	0.000	0.894
8.168	0.080	0.000	0.001	0.974
8.248	0.080	0.000	0.000	1.054
8.328	0.080	0.001	0.002	1.134
8.408	0.080	0.000	0.001	1.214
8.488	0.080	0.000	0.002	1.294
8.568	0.080	0.000	0.012	1.374
8.648	0.080	0.000	0.022	1.454
8.728	0.080	0.001	0.001	1.534
8.808	0.080	0.000	0.000	1.614
8.888	0.080	0.000	0.000	1.694
8.968	0.080	0.000	0.000	1.774
9.048	0.080	0.000	0.000	1.854
9.128	0.080	0.000	0.004	1.934
9.208	0.080	0.002	0.002	2.014
9.288	0.080	0.000	0.001	2.094
9.368	0.080	0.001	0.001	2.174
9.448	0.080	0.000	0.000	2.254
9.528	0.080	0.000	0.000	2.334
9.608	0.080	0.000	0.004	2.414
9.688	0.080	0.000	0.000	2.494
9.768	0.080	0.001	0.001	2.574
9.848	0.080	0.010	0.002	2.654
9.928	0.080	0.026	0.003	2.734
10.008	0.080	0.052	0.004	2.814
10.088	0.080	0.071	0.005	2.894
10.168	0.080	0.091	0.006	2.974
10.248	0.080	0.089	0.006	3.054
10.328	0.080	0.093	0.006	3.134
10.408	0.080	0.097	0.006	3.214
10.488	0.080	0.093	0.006	3.294
10.568	0.080	0.092	0.006	3.374
10.648	0.080	0.096	0.006	3.454
10.728	0.080	0.082	0.006	3.534
10.808	0.080	0.090	0.006	3.614
10.888	0.080	0.094	0.006	3.694
10.968	0.080	0.094	0.006	3.774
11.048	0.080	0.090	0.006	3.854
11.128	0.080	0.092	0.006	3.934
11.208	0.080	0.094	0.006	4.014
11.288	0.080	0.099	0.006	4.094

Continued on next page

TABLE XXXI – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
11.368	0.080	0.098	0.006	4.174
11.448	0.080	0.098	0.006	4.254
11.528	0.080	0.095	0.006	4.334
11.608	0.080	0.110	0.007	4.414
11.688	0.080	0.104	0.006	4.494
11.768	0.080	0.104	0.006	4.574
11.848	0.080	0.115	0.007	4.654
11.928	0.080	0.110	0.007	4.734
12.008	0.080	0.115	0.007	4.814
12.088	0.080	0.117	0.007	4.894
12.168	0.080	0.118	0.007	4.974
12.248	0.080	0.105	0.007	5.054
12.328	0.080	0.089	0.006	5.134
12.408	0.080	0.105	0.007	5.214
12.488	0.080	0.110	0.007	5.294
12.568	0.080	0.113	0.007	5.374
12.648	0.080	0.102	0.007	5.454
12.728	0.080	0.107	0.007	5.534
12.808	0.080	0.107	0.007	5.614
12.888	0.080	0.100	0.006	5.694
12.968	0.080	0.095	0.006	5.774
13.048	0.080	0.092	0.006	5.854
13.128	0.080	0.099	0.007	5.934
13.208	0.080	0.091	0.007	6.014
13.288	0.080	0.093	0.007	6.094
13.368	0.080	0.090	0.007	6.174
13.448	0.080	0.097	0.007	6.254
13.528	0.080	0.090	0.007	6.334
13.608	0.080	0.084	0.007	6.414
13.688	0.080	0.068	0.006	6.494
13.768	0.080	0.058	0.006	6.574
13.848	0.080	0.067	0.006	6.654
13.928	0.080	0.059	0.006	6.734
14.008	0.080	0.057	0.006	6.814
14.088	0.080	0.067	0.007	6.894
14.168	0.080	0.080	0.010	6.974
14.248	0.080	0.080	0.011	7.054
14.328	0.080	0.091	0.013	7.134
14.408	0.080	0.104	0.016	7.214
14.488	0.080	0.063	0.014	7.294
14.568	0.080	0.071	0.017	7.374
14.648	0.080	0.092	0.022	7.454
14.728	0.080	0.089	0.026	7.534
14.808	0.080	0.030	0.021	7.614
14.888	0.080	0.068	0.036	7.694
14.968	0.080	0.093	0.044	7.774
15.048	0.080	0.176	0.046	7.854
15.128	0.080	0.143	1919848.375	7.934
15.208	0.080	0.197	0.011	8.014
15.288	0.080	0.000	2.077	8.094
15.368	0.080	0.000	0.067	8.174
15.448	0.080	0.267	11721483.000	8.254
15.528	0.080	0.000	7.512	8.334
15.608	0.080	2.175	29248064.000	8.414
15.688	0.080	0.000	20.297	8.494
15.768	0.080	0.000	41.318	8.574
15.848	0.080	0.000	105.173	8.654
15.928	0.080	0.000	105.173	8.734
16.008	0.080	0.000	578.453	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXXI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

23. ^{90}Zr γ-ray 561.604 keV

^{90}Zr nucleus
γ-ray observed 561.604 keV
γ-ray originates in initial state at 2747.880 keV and goes to final state at 2186.274 keV
Initial state is 3- and final state is 2+ transition is type E1
Internal conversion coefficent α is 1.000

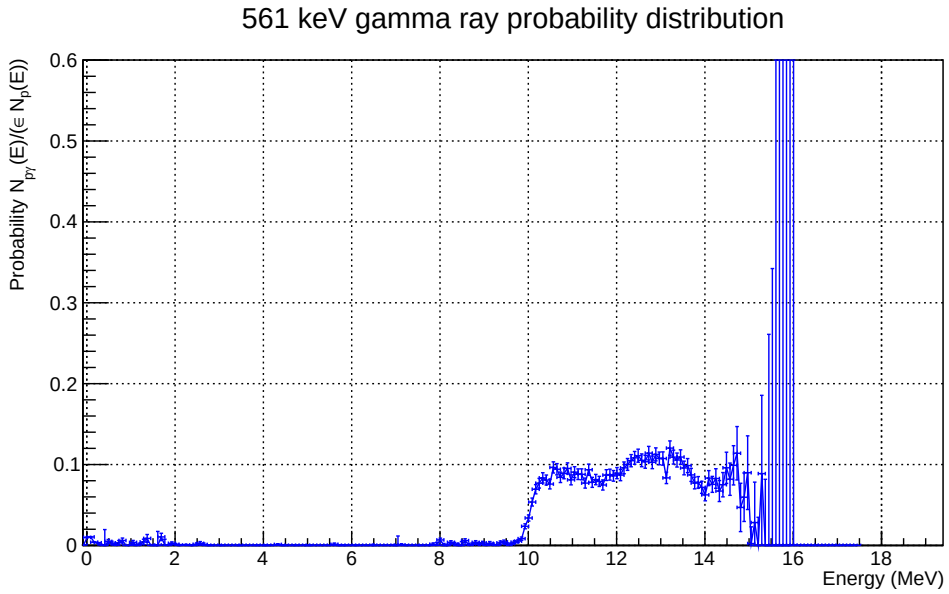

FIG. 50: Gamma ray probability distribution of the 561.604 keV gamma ray from the ^{92}Zr(p,dn)^{90}Zr reaction.

TABLE XXXII: ^{92}Zr(p,dn)^{90}Zr probability versus energy for 561.604 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.001	0.000	-7.266
0.008	0.080	0.010	0.000	-7.186
0.088	0.080	0.010	0.000	-7.106
0.168	0.080	0.004	0.000	-7.026
0.248	0.080	0.003	0.000	-6.946
0.328	0.080	0.001	0.001	-6.866
0.408	0.080	0.000	0.020	-6.786
0.488	0.080	0.005	0.002	-6.706
0.568	0.080	0.003	0.002	-6.626
0.648	0.080	0.001	0.002	-6.546
0.728	0.080	0.003	0.003	-6.466
0.808	0.080	0.006	0.003	-6.386
0.888	0.080	0.000	0.000	-6.306
0.968	0.080	0.000	0.000	-6.226
1.048	0.080	0.004	0.002	-6.146
1.128	0.080	0.000	0.001	-6.066
1.208	0.080	0.002	0.001	-5.986
1.288	0.080	0.004	0.003	-5.906
1.368	0.080	0.009	0.005	-5.826
1.448	0.080	0.000	0.000	-5.746
1.528	0.080	0.000	0.001	-5.666

Continued on next page

TABLE XXXII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.017	-5.586
1.688	0.080	0.010	0.005	-5.506
1.768	0.080	0.000	0.007	-5.426
1.848	0.080	0.000	0.000	-5.346
1.928	0.080	0.003	0.002	-5.266
2.008	0.080	0.001	0.001	-5.186
2.088	0.080	0.000	0.001	-5.106
2.168	0.080	0.000	0.001	-5.026
2.248	0.080	0.001	0.001	-4.946
2.328	0.080	0.000	0.000	-4.866
2.408	0.080	0.000	0.001	-4.786
2.488	0.080	0.001	0.002	-4.706
2.568	0.080	0.003	0.002	-4.626
2.648	0.080	0.001	0.002	-4.546
2.728	0.080	0.000	0.001	-4.466
2.808	0.080	0.000	0.000	-4.386
2.888	0.080	0.000	0.000	-4.306
2.968	0.080	0.000	0.000	-4.226
3.048	0.080	0.000	0.000	-4.146
3.128	0.080	0.000	0.000	-4.066
3.208	0.080	0.000	0.000	-3.986
3.288	0.080	0.000	0.000	-3.906
3.368	0.080	0.000	0.000	-3.826
3.448	0.080	0.000	0.000	-3.746
3.528	0.080	0.000	0.000	-3.666
3.608	0.080	0.000	0.000	-3.586
3.688	0.080	0.000	0.000	-3.506
3.768	0.080	0.000	0.000	-3.426
3.848	0.080	0.000	0.000	-3.346
3.928	0.080	0.000	0.000	-3.266
4.008	0.080	0.000	0.000	-3.186
4.088	0.080	0.000	0.000	-3.106
4.168	0.080	0.000	0.000	-3.026
4.248	0.080	0.000	0.000	-2.946
4.328	0.080	0.001	0.001	-2.866
4.408	0.080	0.000	0.001	-2.786
4.488	0.080	0.000	0.000	-2.706
4.568	0.080	0.000	0.000	-2.626
4.648	0.080	0.000	0.000	-2.546
4.728	0.080	0.000	0.000	-2.466
4.808	0.080	0.000	0.000	-2.386
4.888	0.080	0.000	0.000	-2.306
4.968	0.080	0.000	0.000	-2.226
5.048	0.080	0.000	0.000	-2.146
5.128	0.080	0.000	0.000	-2.066
5.208	0.080	0.000	0.000	-1.986
5.288	0.080	0.000	0.000	-1.906
5.368	0.080	0.000	0.000	-1.826
5.448	0.080	0.000	0.000	-1.746
5.528	0.080	0.000	0.000	-1.666
5.608	0.080	0.001	0.002	-1.586
5.688	0.080	0.000	0.001	-1.506
5.768	0.080	0.000	0.001	-1.426
5.848	0.080	0.000	0.001	-1.346
5.928	0.080	0.000	0.000	-1.266
6.008	0.080	0.000	0.000	-1.186
6.088	0.080	0.000	0.000	-1.106
6.168	0.080	0.000	0.000	-1.026
6.248	0.080	0.000	0.000	-0.946
6.328	0.080	0.000	0.000	-0.866
6.408	0.080	0.000	0.000	-0.786

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TABLE XXXII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.000	0.002	-0.706
6.568	0.080	0.000	0.000	-0.626
6.648	0.080	0.000	0.000	-0.546
6.728	0.080	0.000	0.000	-0.466
6.808	0.080	0.000	0.000	-0.386
6.888	0.080	0.000	0.000	-0.306
6.968	0.080	0.000	0.001	-0.226
7.048	0.080	0.000	0.012	-0.146
7.128	0.080	0.001	0.002	-0.066
7.208	0.080	0.000	0.000	0.014
7.288	0.080	0.000	0.000	0.094
7.368	0.080	0.000	0.000	0.174
7.448	0.080	0.000	0.000	0.254
7.528	0.080	0.000	0.001	0.334
7.608	0.080	0.000	0.000	0.414
7.688	0.080	0.000	0.000	0.494
7.768	0.080	0.000	0.001	0.574
7.848	0.080	0.002	0.002	0.654
7.928	0.080	0.000	0.004	0.734
8.008	0.080	0.007	0.002	0.814
8.088	0.080	0.000	0.002	0.894
8.168	0.080	0.000	0.002	0.974
8.248	0.080	0.004	0.002	1.054
8.328	0.080	0.002	0.002	1.134
8.408	0.080	0.000	0.003	1.214
8.488	0.080	0.000	0.005	1.294
8.568	0.080	0.006	0.002	1.374
8.648	0.080	0.001	0.002	1.454
8.728	0.080	0.001	0.002	1.534
8.808	0.080	0.004	0.002	1.614
8.888	0.080	0.001	0.002	1.694
8.968	0.080	0.003	0.002	1.774
9.048	0.080	0.000	0.000	1.854
9.128	0.080	0.003	0.002	1.934
9.208	0.080	0.001	0.002	2.014
9.288	0.080	0.000	0.000	2.094
9.368	0.080	0.003	0.002	2.174
9.448	0.080	0.004	0.002	2.254
9.528	0.080	0.001	0.002	2.334
9.608	0.080	0.002	0.002	2.414
9.688	0.080	0.004	0.002	2.494
9.768	0.080	0.005	0.002	2.574
9.848	0.080	0.008	0.002	2.654
9.928	0.080	0.024	0.003	2.734
10.008	0.080	0.034	0.004	2.814
10.088	0.080	0.054	0.005	2.894
10.168	0.080	0.069	0.006	2.974
10.248	0.080	0.077	0.006	3.054
10.328	0.080	0.083	0.006	3.134
10.408	0.080	0.081	0.006	3.214
10.488	0.080	0.076	0.006	3.294
10.568	0.080	0.096	0.007	3.374
10.648	0.080	0.094	0.007	3.454
10.728	0.080	0.084	0.006	3.534
10.808	0.080	0.089	0.007	3.614
10.888	0.080	0.095	0.007	3.694
10.968	0.080	0.081	0.006	3.774
11.048	0.080	0.091	0.007	3.854
11.128	0.080	0.088	0.007	3.934
11.208	0.080	0.088	0.007	4.014
11.288	0.080	0.077	0.006	4.094

Continued on next page

TABLE XXXII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.094	0.007	4.174
11.448	0.080	0.078	0.006	4.254
11.528	0.080	0.081	0.006	4.334
11.608	0.080	0.079	0.006	4.414
11.688	0.080	0.075	0.006	4.494
11.768	0.080	0.087	0.007	4.574
11.848	0.080	0.087	0.007	4.654
11.928	0.080	0.086	0.007	4.734
12.008	0.080	0.089	0.007	4.814
12.088	0.080	0.087	0.007	4.894
12.168	0.080	0.096	0.007	4.974
12.248	0.080	0.100	0.007	5.054
12.328	0.080	0.105	0.008	5.134
12.408	0.080	0.108	0.008	5.214
12.488	0.080	0.111	0.008	5.294
12.568	0.080	0.105	0.008	5.374
12.648	0.080	0.104	0.008	5.454
12.728	0.080	0.114	0.008	5.534
12.808	0.080	0.103	0.008	5.614
12.888	0.080	0.113	0.008	5.694
12.968	0.080	0.108	0.008	5.774
13.048	0.080	0.108	0.008	5.854
13.128	0.080	0.083	0.007	5.934
13.208	0.080	0.120	0.009	6.014
13.288	0.080	0.109	0.009	6.094
13.368	0.080	0.106	0.009	6.174
13.448	0.080	0.109	0.009	6.254
13.528	0.080	0.096	0.008	6.334
13.608	0.080	0.099	0.009	6.414
13.688	0.080	0.087	0.008	6.494
13.768	0.080	0.077	0.007	6.574
13.848	0.080	0.078	0.007	6.654
13.928	0.080	0.072	0.007	6.734
14.008	0.080	0.062	0.007	6.814
14.088	0.080	0.083	0.009	6.894
14.168	0.080	0.075	0.010	6.974
14.248	0.080	0.083	0.012	7.054
14.328	0.080	0.067	0.013	7.134
14.408	0.080	0.075	0.015	7.214
14.488	0.080	0.096	0.019	7.294
14.568	0.080	0.082	0.020	7.374
14.648	0.080	0.099	0.024	7.454
14.728	0.080	0.114	0.033	7.534
14.808	0.080	0.047	0.030	7.614
14.888	0.080	0.060	0.030	7.694
14.968	0.080	0.090	0.046	7.774
15.048	0.080	0.002	0.021	7.854
15.128	0.080	0.028	0.050	7.934
15.208	0.080	0.000	0.035	8.014
15.288	0.080	0.089	0.097	8.094
15.368	0.080	0.000	0.082	8.174
15.448	0.080	0.000	0.261	8.254
15.528	0.080	0.000	0.342	8.334
15.608	0.080	0.000	0.651	8.414
15.688	0.080	0.000	0.925	8.494
15.768	0.080	0.000	1.883	8.574
15.848	0.080	0.000	4.792	8.654
15.928	0.080	0.000	4.792	8.734
16.008	0.080	0.000	26.357	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

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TABLE XXXII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

24. ^{90}Zr γ-ray 890.640 keV

^{90}Zr nucleus
γ-ray observed 890.640 keV
γ-ray originates in initial state at 3076.930 keV and goes to final state at 2186.274 keV
Initial state is 4+ and final state is 2+ transition is type E2
Internal conversion coefficent α is 1.000

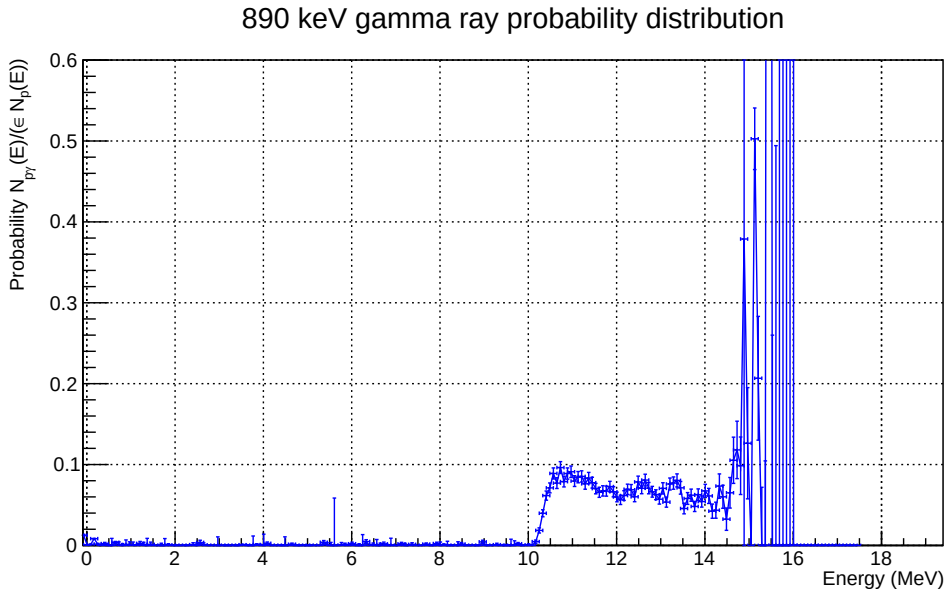

FIG. 51: Gamma ray probability distribution of the 890.640 keV gamma ray from the ^{92}Zr(p,dn)^{90}Zr reaction.

TABLE XXXIII: ^{92}Zr(p,dn)^{90}Zr probability versus energy for 890.640 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
-0.072	0.080	0.013	0.001	-7.266
0.008	0.080	0.001	0.000	-7.186
0.088	0.080	0.001	0.000	-7.106
0.168	0.080	0.008	0.000	-7.026
0.248	0.080	0.002	0.001	-6.946
0.328	0.080	0.000	0.000	-6.866
0.408	0.080	0.002	0.002	-6.786
0.488	0.080	0.000	0.001	-6.706
0.568	0.080	0.000	0.009	-6.626
0.648	0.080	0.004	0.001	-6.546
0.728	0.080	0.000	0.004	-6.466
0.808	0.080	0.000	0.002	-6.386
0.888	0.080	0.001	0.006	-6.306
0.968	0.080	0.001	0.003	-6.226
1.048	0.080	0.001	0.003	-6.146
1.128	0.080	0.000	0.000	-6.066
1.208	0.080	0.002	0.002	-5.986
1.288	0.080	0.001	0.003	-5.906
1.368	0.080	0.000	0.009	-5.826
1.448	0.080	0.001	0.003	-5.746
1.528	0.080	0.000	0.000	-5.666

Continued on next page

TABLE XXXIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.608	0.080	0.000	0.000	-5.586
1.688	0.080	0.000	0.003	-5.506
1.768	0.080	0.000	0.008	-5.426
1.848	0.080	0.001	0.002	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.000	0.001	-5.186
2.088	0.080	0.000	0.000	-5.106
2.168	0.080	0.000	0.000	-5.026
2.248	0.080	0.000	0.001	-4.946
2.328	0.080	0.000	0.000	-4.866
2.408	0.080	0.001	0.002	-4.786
2.488	0.080	0.000	0.003	-4.706
2.568	0.080	0.004	0.003	-4.626
2.648	0.080	0.001	0.003	-4.546
2.728	0.080	0.000	0.000	-4.466
2.808	0.080	0.000	0.000	-4.386
2.888	0.080	0.000	0.000	-4.306
2.968	0.080	0.000	0.011	-4.226
3.048	0.080	0.000	0.000	-4.146
3.128	0.080	0.000	0.000	-4.066
3.208	0.080	0.000	0.000	-3.986
3.288	0.080	0.000	0.000	-3.906
3.368	0.080	0.000	0.000	-3.826
3.448	0.080	0.000	0.000	-3.746
3.528	0.080	0.001	0.001	-3.666
3.608	0.080	0.000	0.001	-3.586
3.688	0.080	0.000	0.001	-3.506
3.768	0.080	0.000	0.012	-3.426
3.848	0.080	0.001	0.001	-3.346
3.928	0.080	0.001	0.001	-3.266
4.008	0.080	0.000	0.014	-3.186
4.088	0.080	0.003	0.002	-3.106
4.168	0.080	0.000	0.000	-3.026
4.248	0.080	0.000	0.000	-2.946
4.328	0.080	0.000	0.000	-2.866
4.408	0.080	0.000	0.001	-2.786
4.488	0.080	0.000	0.011	-2.706
4.568	0.080	0.000	0.000	-2.626
4.648	0.080	0.002	0.001	-2.546
4.728	0.080	0.000	0.000	-2.466
4.808	0.080	0.000	0.000	-2.386
4.888	0.080	0.000	0.000	-2.306
4.968	0.080	0.000	0.000	-2.226
5.048	0.080	0.000	0.000	-2.146
5.128	0.080	0.000	0.000	-2.066
5.208	0.080	0.000	0.000	-1.986
5.288	0.080	0.000	0.000	-1.906
5.368	0.080	0.004	0.002	-1.826
5.448	0.080	0.001	0.002	-1.746
5.528	0.080	0.000	0.004	-1.666
5.608	0.080	0.000	0.059	-1.586
5.688	0.080	0.000	0.000	-1.506
5.768	0.080	0.000	0.003	-1.426
5.848	0.080	0.001	0.002	-1.346
5.928	0.080	0.000	0.000	-1.266
6.008	0.080	0.002	0.002	-1.186
6.088	0.080	0.000	0.000	-1.106
6.168	0.080	0.000	0.002	-1.026
6.248	0.080	0.000	0.013	-0.946
6.328	0.080	0.005	0.002	-0.866
6.408	0.080	0.000	0.000	-0.786

Continued on next page

TABLE XXXIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.001	0.002	-0.706
6.568	0.080	0.000	0.007	-0.626
6.648	0.080	0.000	0.003	-0.546
6.728	0.080	0.002	0.002	-0.466
6.808	0.080	0.000	0.001	-0.386
6.888	0.080	0.000	0.009	-0.306
6.968	0.080	0.000	0.000	-0.226
7.048	0.080	0.000	0.000	-0.146
7.128	0.080	0.002	0.002	-0.066
7.208	0.080	0.000	0.003	0.014
7.288	0.080	0.000	0.000	0.094
7.368	0.080	0.001	0.002	0.174
7.448	0.080	0.000	0.000	0.254
7.528	0.080	0.000	0.000	0.334
7.608	0.080	0.000	0.000	0.414
7.688	0.080	0.002	0.001	0.494
7.768	0.080	0.000	0.000	0.574
7.848	0.080	0.000	0.000	0.654
7.928	0.080	0.002	0.002	0.734
8.008	0.080	0.000	0.004	0.814
8.088	0.080	0.000	0.002	0.894
8.168	0.080	0.000	0.005	0.974
8.248	0.080	0.000	0.000	1.054
8.328	0.080	0.000	0.000	1.134
8.408	0.080	0.000	0.005	1.214
8.488	0.080	0.002	0.002	1.294
8.568	0.080	0.000	0.000	1.374
8.648	0.080	0.000	0.000	1.454
8.728	0.080	0.000	0.000	1.534
8.808	0.080	0.000	0.000	1.614
8.888	0.080	0.000	0.000	1.694
8.968	0.080	0.004	0.002	1.774
9.048	0.080	0.000	0.001	1.854
9.128	0.080	0.000	0.000	1.934
9.208	0.080	0.000	0.000	2.014
9.288	0.080	0.001	0.002	2.094
9.368	0.080	0.000	0.000	2.174
9.448	0.080	0.000	0.001	2.254
9.528	0.080	0.000	0.001	2.334
9.608	0.080	0.000	0.008	2.414
9.688	0.080	0.000	0.006	2.494
9.768	0.080	0.002	0.002	2.574
9.848	0.080	0.000	0.000	2.654
9.928	0.080	0.000	0.000	2.734
10.008	0.080	0.001	0.001	2.814
10.088	0.080	0.000	0.000	2.894
10.168	0.080	0.005	0.002	2.974
10.248	0.080	0.019	0.003	3.054
10.328	0.080	0.040	0.004	3.134
10.408	0.080	0.062	0.006	3.214
10.488	0.080	0.071	0.006	3.294
10.568	0.080	0.089	0.007	3.374
10.648	0.080	0.077	0.007	3.454
10.728	0.080	0.096	0.007	3.534
10.808	0.080	0.079	0.007	3.614
10.888	0.080	0.089	0.007	3.694
10.968	0.080	0.091	0.007	3.774
11.048	0.080	0.080	0.007	3.854
11.128	0.080	0.084	0.007	3.934
11.208	0.080	0.085	0.007	4.014
11.288	0.080	0.076	0.007	4.094

Continued on next page

TABLE XXXIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.083	0.007	4.174
11.448	0.080	0.078	0.007	4.254
11.528	0.080	0.070	0.006	4.334
11.608	0.080	0.066	0.006	4.414
11.688	0.080	0.067	0.006	4.494
11.768	0.080	0.067	0.006	4.574
11.848	0.080	0.073	0.007	4.654
11.928	0.080	0.066	0.006	4.734
12.008	0.080	0.060	0.006	4.814
12.088	0.080	0.056	0.006	4.894
12.168	0.080	0.062	0.006	4.974
12.248	0.080	0.069	0.006	5.054
12.328	0.080	0.069	0.006	5.134
12.408	0.080	0.060	0.006	5.214
12.488	0.080	0.079	0.007	5.294
12.568	0.080	0.071	0.007	5.374
12.648	0.080	0.081	0.007	5.454
12.728	0.080	0.071	0.007	5.534
12.808	0.080	0.066	0.007	5.614
12.888	0.080	0.063	0.006	5.694
12.968	0.080	0.057	0.006	5.774
13.048	0.080	0.071	0.007	5.854
13.128	0.080	0.054	0.006	5.934
13.208	0.080	0.076	0.007	6.014
13.288	0.080	0.077	0.008	6.094
13.368	0.080	0.080	0.008	6.174
13.448	0.080	0.071	0.008	6.254
13.528	0.080	0.046	0.007	6.334
13.608	0.080	0.058	0.007	6.414
13.688	0.080	0.062	0.007	6.494
13.768	0.080	0.048	0.006	6.574
13.848	0.080	0.063	0.007	6.654
13.928	0.080	0.054	0.007	6.734
14.008	0.080	0.067	0.008	6.814
14.088	0.080	0.061	0.009	6.894
14.168	0.080	0.042	0.009	6.974
14.248	0.080	0.043	0.010	7.054
14.328	0.080	0.073	0.015	7.134
14.408	0.080	0.060	0.014	7.214
14.488	0.080	0.032	0.014	7.294
14.568	0.080	0.065	0.019	7.374
14.648	0.080	0.105	0.029	7.454
14.728	0.080	0.118	0.036	7.534
14.808	0.080	0.098	0.036	7.614
14.888	0.080	0.379	889874.000	7.694
14.968	0.080	0.126	0.069	7.774
15.048	0.080	0.000	0.000	7.854
15.128	0.080	0.503	0.038	7.934
15.208	0.080	0.207	0.076	8.014
15.288	0.080	0.000	0.072	8.094
15.368	0.080	0.000	0.105	8.174
15.448	0.080	4.104	18424178.000	8.254
15.528	0.080	0.000	0.260	8.334
15.608	0.080	0.000	0.494	8.414
15.688	0.080	0.000	0.702	8.494
15.768	0.080	0.000	1.430	8.574
15.848	0.080	0.000	3.639	8.654
15.928	0.080	0.000	3.639	8.734
16.008	0.080	0.000	20.016	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXXIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

25. ^{90}Zr γ-ray 1129.224 keV

^{90}Zr nucleus
γ-ray observed 1129.224 keV
γ-ray originates in initial state at 3448.230 keV and goes to final state at 2319.000 keV
Initial state is 6+ and final state is 5- transition is type E1
Internal conversion coefficent α is 1.000

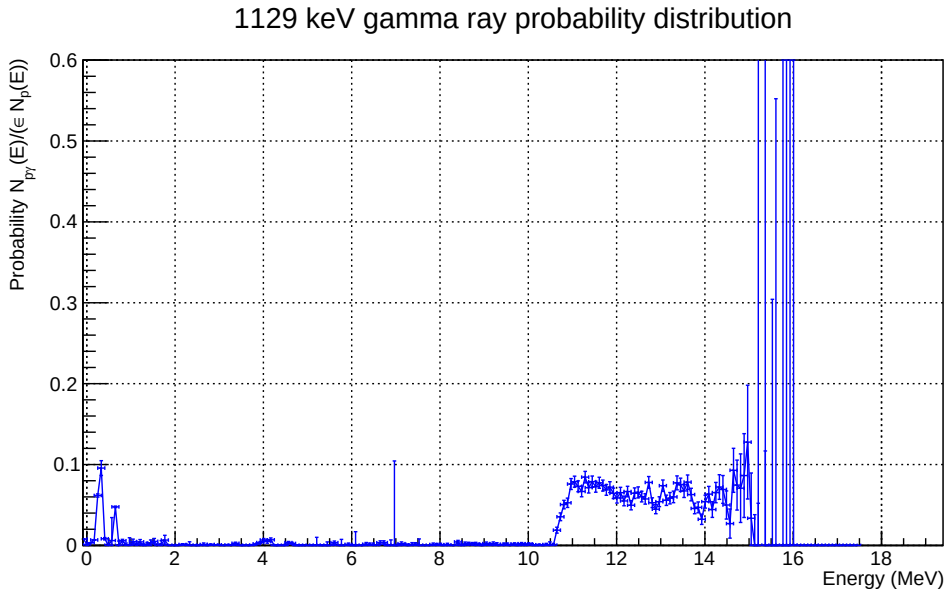

FIG. 52: Gamma ray probability distribution of the 1129.224 keV gamma ray from the ^{92}Zr(p,dn)^{90}Zr reaction.

TABLE XXXIV: ^{92}Zr(p,dn)^{90}Zr probability versus energy for 1129.224 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.008	0.000	-7.266
0.008	0.080	0.001	0.001	-7.186
0.088	0.080	0.003	0.000	-7.106
0.168	0.080	0.007	0.000	-7.026
0.248	0.080	0.062	0.002	-6.946
0.328	0.080	0.096	0.009	-6.866
0.408	0.080	0.008	0.001	-6.786
0.488	0.080	0.000	0.002	-6.706
0.568	0.080	0.006	0.028	-6.626
0.648	0.080	0.048	0.001	-6.546
0.728	0.080	0.000	0.005	-6.466
0.808	0.080	0.006	0.002	-6.386
0.888	0.080	0.001	0.002	-6.306
0.968	0.080	0.000	0.009	-6.226
1.048	0.080	0.005	0.003	-6.146
1.128	0.080	0.001	0.002	-6.066
1.208	0.080	0.004	0.003	-5.986
1.288	0.080	0.000	0.002	-5.906
1.368	0.080	0.001	0.003	-5.826
1.448	0.080	0.003	0.004	-5.746
1.528	0.080	0.005	0.004	-5.666

Continued on next page

TABLE XXXIV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
1.608	0.080	0.000	0.000	-5.586
1.688	0.080	0.002	0.004	-5.506
1.768	0.080	0.007	0.006	-5.426
1.848	0.080	0.000	0.000	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.000	0.000	-5.186
2.088	0.080	0.000	0.000	-5.106
2.168	0.080	0.001	0.001	-5.026
2.248	0.080	0.001	0.001	-4.946
2.328	0.080	0.000	0.004	-4.866
2.408	0.080	0.000	0.000	-4.786
2.488	0.080	0.000	0.001	-4.706
2.568	0.080	0.000	0.000	-4.626
2.648	0.080	0.001	0.002	-4.546
2.728	0.080	0.000	0.001	-4.466
2.808	0.080	0.001	0.001	-4.386
2.888	0.080	0.000	0.000	-4.306
2.968	0.080	0.001	0.001	-4.226
3.048	0.080	0.000	0.000	-4.146
3.128	0.080	0.000	0.000	-4.066
3.208	0.080	0.000	0.001	-3.986
3.288	0.080	0.000	0.000	-3.906
3.368	0.080	0.003	0.001	-3.826
3.448	0.080	0.000	0.000	-3.746
3.528	0.080	0.000	0.000	-3.666
3.608	0.080	0.000	0.000	-3.586
3.688	0.080	0.000	0.000	-3.506
3.768	0.080	0.000	0.001	-3.426
3.848	0.080	0.002	0.001	-3.346
3.928	0.080	0.004	0.001	-3.266
4.008	0.080	0.007	0.002	-3.186
4.088	0.080	0.005	0.002	-3.106
4.168	0.080	0.007	0.002	-3.026
4.248	0.080	0.000	0.001	-2.946
4.328	0.080	0.000	0.000	-2.866
4.408	0.080	0.000	0.000	-2.786
4.488	0.080	0.000	0.001	-2.706
4.568	0.080	0.004	0.001	-2.626
4.648	0.080	0.002	0.001	-2.546
4.728	0.080	0.000	0.000	-2.466
4.808	0.080	0.000	0.001	-2.386
4.888	0.080	0.000	0.000	-2.306
4.968	0.080	0.000	0.000	-2.226
5.048	0.080	0.000	0.000	-2.146
5.128	0.080	0.000	0.001	-2.066
5.208	0.080	0.000	0.010	-1.986
5.288	0.080	0.000	0.001	-1.906
5.368	0.080	0.000	0.000	-1.826
5.448	0.080	0.000	0.004	-1.746
5.528	0.080	0.000	0.000	-1.666
5.608	0.080	0.004	0.002	-1.586
5.688	0.080	0.000	0.000	-1.506
5.768	0.080	0.000	0.007	-1.426
5.848	0.080	0.000	0.000	-1.346
5.928	0.080	0.001	0.002	-1.266
6.008	0.080	0.000	0.001	-1.186
6.088	0.080	0.000	0.017	-1.106
6.168	0.080	0.000	0.000	-1.026
6.248	0.080	0.000	0.000	-0.946
6.328	0.080	0.002	0.002	-0.866
6.408	0.080	0.001	0.002	-0.786

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TABLE XXXIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.488	0.080	0.000	0.003	-0.706
6.568	0.080	0.000	0.000	-0.626
6.648	0.080	0.003	0.002	-0.546
6.728	0.080	0.004	0.002	-0.466
6.808	0.080	0.000	0.001	-0.386
6.888	0.080	0.000	0.007	-0.306
6.968	0.080	0.000	0.104	-0.226
7.048	0.080	0.000	0.002	-0.146
7.128	0.080	0.002	0.002	-0.066
7.208	0.080	0.001	0.002	0.014
7.288	0.080	0.000	0.002	0.094
7.368	0.080	0.000	0.003	0.174
7.448	0.080	0.002	0.002	0.254
7.528	0.080	0.000	0.008	0.334
7.608	0.080	0.000	0.000	0.414
7.688	0.080	0.000	0.000	0.494
7.768	0.080	0.000	0.000	0.574
7.848	0.080	0.001	0.002	0.654
7.928	0.080	0.000	0.002	0.734
8.008	0.080	0.001	0.002	0.814
8.088	0.080	0.000	0.000	0.894
8.168	0.080	0.001	0.002	0.974
8.248	0.080	0.000	0.000	1.054
8.328	0.080	0.000	0.000	1.134
8.408	0.080	0.004	0.002	1.214
8.488	0.080	0.000	0.001	1.294
8.568	0.080	0.002	0.002	1.374
8.648	0.080	0.002	0.002	1.454
8.728	0.080	0.002	0.002	1.534
8.808	0.080	0.002	0.002	1.614
8.888	0.080	0.001	0.002	1.694
8.968	0.080	0.000	0.002	1.774
9.048	0.080	0.002	0.002	1.854
9.128	0.080	0.001	0.002	1.934
9.208	0.080	0.002	0.002	2.014
9.288	0.080	0.001	0.002	2.094
9.368	0.080	0.000	0.000	2.174
9.448	0.080	0.001	0.002	2.254
9.528	0.080	0.001	0.002	2.334
9.608	0.080	0.000	0.000	2.414
9.688	0.080	0.002	0.001	2.494
9.768	0.080	0.000	0.001	2.574
9.848	0.080	0.002	0.001	2.654
9.928	0.080	0.000	0.000	2.734
10.008	0.080	0.002	0.001	2.814
10.088	0.080	0.001	0.002	2.894
10.168	0.080	0.000	0.001	2.974
10.248	0.080	0.000	0.001	3.054
10.328	0.080	0.000	0.001	3.134
10.408	0.080	0.001	0.001	3.214
10.488	0.080	0.000	0.004	3.294
10.568	0.080	0.000	0.002	3.374
10.648	0.080	0.019	0.004	3.454
10.728	0.080	0.035	0.005	3.534
10.808	0.080	0.051	0.005	3.614
10.888	0.080	0.053	0.006	3.694
10.968	0.080	0.076	0.007	3.774
11.048	0.080	0.079	0.007	3.854
11.128	0.080	0.073	0.007	3.934
11.208	0.080	0.067	0.007	4.014
11.288	0.080	0.084	0.007	4.094

Continued on next page

TABLE XXXIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.368	0.080	0.072	0.007	4.174
11.448	0.080	0.079	0.007	4.254
11.528	0.080	0.073	0.007	4.334
11.608	0.080	0.078	0.007	4.414
11.688	0.080	0.074	0.007	4.494
11.768	0.080	0.069	0.007	4.574
11.848	0.080	0.072	0.007	4.654
11.928	0.080	0.064	0.006	4.734
12.008	0.080	0.059	0.006	4.814
12.088	0.080	0.065	0.007	4.894
12.168	0.080	0.055	0.006	4.974
12.248	0.080	0.067	0.007	5.054
12.328	0.080	0.050	0.006	5.134
12.408	0.080	0.065	0.007	5.214
12.488	0.080	0.066	0.007	5.294
12.568	0.080	0.060	0.007	5.374
12.648	0.080	0.058	0.006	5.454
12.728	0.080	0.078	0.007	5.534
12.808	0.080	0.053	0.006	5.614
12.888	0.080	0.045	0.006	5.694
12.968	0.080	0.054	0.006	5.774
13.048	0.080	0.074	0.007	5.854
13.128	0.080	0.056	0.006	5.934
13.208	0.080	0.058	0.007	6.014
13.288	0.080	0.060	0.007	6.094
13.368	0.080	0.077	0.009	6.174
13.448	0.080	0.075	0.008	6.254
13.528	0.080	0.067	0.008	6.334
13.608	0.080	0.078	0.009	6.414
13.688	0.080	0.063	0.008	6.494
13.768	0.080	0.046	0.007	6.574
13.848	0.080	0.047	0.007	6.654
13.928	0.080	0.032	0.006	6.734
14.008	0.080	0.054	0.008	6.814
14.088	0.080	0.063	0.010	6.894
14.168	0.080	0.044	0.010	6.974
14.248	0.080	0.065	0.013	7.054
14.328	0.080	0.072	0.015	7.134
14.408	0.080	0.069	0.017	7.214
14.488	0.080	0.050	0.017	7.294
14.568	0.080	0.027	0.018	7.374
14.648	0.080	0.093	0.027	7.454
14.728	0.080	0.075	0.031	7.534
14.808	0.080	0.071	0.042	7.614
14.888	0.080	0.086	0.052	7.694
14.968	0.080	0.128	0.070	7.774
15.048	0.080	0.034	0.056	7.854
15.128	0.080	0.000	0.038	7.934
15.208	0.080	0.000	0.052	8.014
15.288	0.080	20.322	2.715	8.094
15.368	0.080	0.000	0.117	8.174
15.448	0.080	0.000	0.000	8.254
15.528	0.080	0.000	0.304	8.334
15.608	0.080	0.000	0.552	8.414
15.688	0.080	0.000	0.000	8.494
15.768	0.080	0.000	1.597	8.574
15.848	0.080	0.000	4.066	8.654
15.928	0.080	0.000	4.066	8.734
16.008	0.080	0.000	22.365	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXXIV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

26. ^{90}Zr γ-ray 2186.270 keV

^{90}Zr nucleus
γ-ray observed 2186.270 keV
γ-ray originates in initial state at 2186.270 keV and goes to final state at 0.000 keV
Initial state is 2+ and final state is 0+ transition is type E2
Internal conversion coefficent α is 1.000

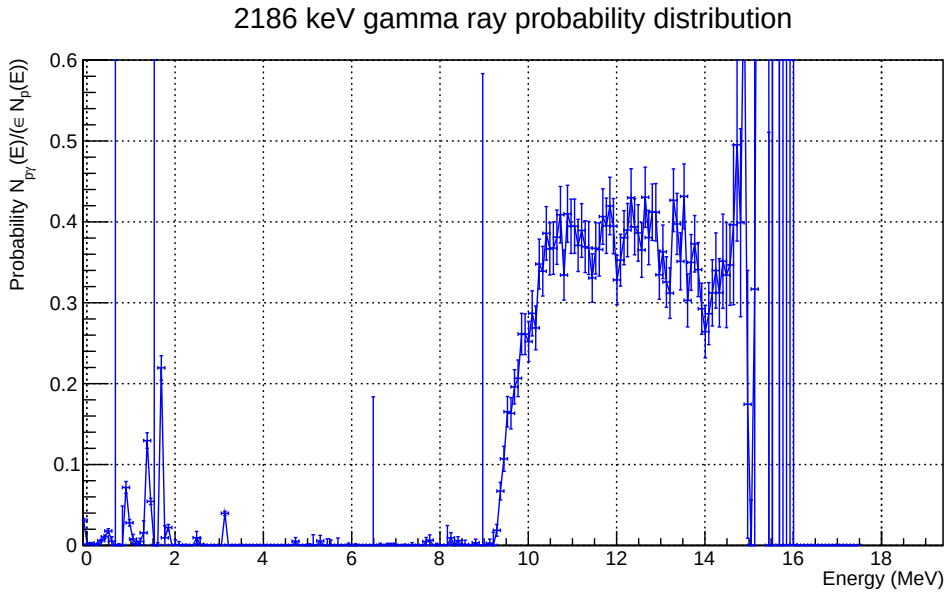

FIG. 53: Gamma ray probability distribution of the 2186.270 keV gamma ray from the ^{92}Zr(p,dn)^{90}Zr reaction.

TABLE XXXV: ^{92}Zr(p,dn)^{90}Zr probability versus energy for 2186.270 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
-0.072	0.080	0.031	0.002	-7.266
0.008	0.080	0.001	0.001	-7.186
0.088	0.080	0.003	0.001	-7.106
0.168	0.080	0.001	0.001	-7.026
0.248	0.080	0.002	0.001	-6.946
0.328	0.080	0.006	0.002	-6.866
0.408	0.080	0.011	0.002	-6.786
0.488	0.080	0.018	0.003	-6.706
0.568	0.080	0.005	0.006	-6.626
0.648	0.080	0.000	410618.812	-6.546
0.728	0.080	0.000	0.002	-6.466
0.808	0.080	0.000	0.049	-6.386
0.888	0.080	0.072	0.007	-6.306
0.968	0.080	0.028	0.004	-6.226
1.048	0.080	0.008	0.006	-6.146
1.128	0.080	0.002	0.003	-6.066
1.208	0.080	0.005	0.004	-5.986
1.288	0.080	0.016	0.015	-5.906
1.368	0.080	0.130	0.010	-5.826
1.448	0.080	0.054	0.004	-5.746
1.528	0.080	0.000	481271.188	-5.666

Continued on next page

TABLE XXXV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
1.608	0.080	0.000	0.003	-5.586
1.688	0.080	0.220	0.015	-5.506
1.768	0.080	0.009	0.015	-5.426
1.848	0.080	0.022	0.004	-5.346
1.928	0.080	0.000	0.000	-5.266
2.008	0.080	0.001	0.006	-5.186
2.088	0.080	0.001	0.004	-5.106
2.168	0.080	0.000	0.001	-5.026
2.248	0.080	0.000	0.001	-4.946
2.328	0.080	0.000	0.000	-4.866
2.408	0.080	0.000	0.000	-4.786
2.488	0.080	0.010	0.008	-4.706
2.568	0.080	0.002	0.008	-4.626
2.648	0.080	0.000	0.001	-4.546
2.728	0.080	0.000	0.000	-4.466
2.808	0.080	0.000	0.000	-4.386
2.888	0.080	0.000	0.000	-4.306
2.968	0.080	0.000	0.000	-4.226
3.048	0.080	0.000	0.000	-4.146
3.128	0.080	0.040	0.003	-4.066
3.208	0.080	0.000	0.000	-3.986
3.288	0.080	0.000	0.000	-3.906
3.368	0.080	0.000	0.000	-3.826
3.448	0.080	0.000	0.000	-3.746
3.528	0.080	0.000	0.000	-3.666
3.608	0.080	0.000	0.000	-3.586
3.688	0.080	0.000	0.000	-3.506
3.768	0.080	0.000	0.001	-3.426
3.848	0.080	0.000	0.001	-3.346
3.928	0.080	0.000	0.000	-3.266
4.008	0.080	0.000	0.000	-3.186
4.088	0.080	0.000	0.000	-3.106
4.168	0.080	0.000	0.000	-3.026
4.248	0.080	0.000	0.000	-2.946
4.328	0.080	0.000	0.000	-2.866
4.408	0.080	0.000	0.000	-2.786
4.488	0.080	0.000	0.000	-2.706
4.568	0.080	0.000	0.000	-2.626
4.648	0.080	0.000	0.000	-2.546
4.728	0.080	0.005	0.005	-2.466
4.808	0.080	0.000	0.000	-2.386
4.888	0.080	0.000	0.000	-2.306
4.968	0.080	0.000	0.001	-2.226
5.048	0.080	0.000	0.002	-2.146
5.128	0.080	0.000	0.013	-2.066
5.208	0.080	0.000	0.000	-1.986
5.288	0.080	0.006	0.007	-1.906
5.368	0.080	0.000	0.000	-1.826
5.448	0.080	0.000	0.008	-1.746
5.528	0.080	0.000	0.007	-1.666
5.608	0.080	0.000	0.000	-1.586
5.688	0.080	0.000	0.009	-1.506
5.768	0.080	0.000	0.000	-1.426
5.848	0.080	0.000	0.000	-1.346
5.928	0.080	0.000	0.003	-1.266
6.008	0.080	0.000	0.000	-1.186
6.088	0.080	0.000	0.002	-1.106
6.168	0.080	0.000	0.000	-1.026
6.248	0.080	0.000	0.000	-0.946
6.328	0.080	0.000	0.000	-0.866
6.408	0.080	0.000	0.000	-0.786

Continued on next page

TABLE XXXV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.488	0.080	0.000	0.184	-0.706
6.568	0.080	0.000	0.000	-0.626
6.648	0.080	0.000	0.003	-0.546
6.728	0.080	0.000	0.000	-0.466
6.808	0.080	0.000	0.003	-0.386
6.888	0.080	0.000	0.003	-0.306
6.968	0.080	0.000	0.003	-0.226
7.048	0.080	0.000	0.000	-0.146
7.128	0.080	0.000	0.000	-0.066
7.208	0.080	0.000	0.002	0.014
7.288	0.080	0.000	0.000	0.094
7.368	0.080	0.000	0.003	0.174
7.448	0.080	0.000	0.000	0.254
7.528	0.080	0.000	0.000	0.334
7.608	0.080	0.000	0.000	0.414
7.688	0.080	0.005	0.005	0.494
7.768	0.080	0.007	0.007	0.574
7.848	0.080	0.000	0.000	0.654
7.928	0.080	0.000	0.003	0.734
8.008	0.080	0.000	0.000	0.814
8.088	0.080	0.000	0.000	0.894
8.168	0.080	0.000	0.024	0.974
8.248	0.080	0.009	0.006	1.054
8.328	0.080	0.000	0.003	1.134
8.408	0.080	0.006	0.005	1.214
8.488	0.080	0.000	0.001	1.294
8.568	0.080	0.001	0.005	1.374
8.648	0.080	0.000	0.000	1.454
8.728	0.080	0.000	0.000	1.534
8.808	0.080	0.003	0.004	1.614
8.888	0.080	0.000	0.000	1.694
8.968	0.080	0.000	0.583	1.774
9.048	0.080	0.000	0.000	1.854
9.128	0.080	0.003	0.005	1.934
9.208	0.080	0.000	0.016	2.014
9.288	0.080	0.019	0.007	2.094
9.368	0.080	0.067	0.011	2.174
9.448	0.080	0.107	0.015	2.254
9.528	0.080	0.165	0.019	2.334
9.608	0.080	0.163	0.019	2.414
9.688	0.080	0.196	0.021	2.494
9.768	0.080	0.207	0.023	2.574
9.848	0.080	0.261	0.026	2.654
9.928	0.080	0.261	0.025	2.734
10.008	0.080	0.252	0.025	2.814
10.088	0.080	0.287	0.028	2.894
10.168	0.080	0.269	0.027	2.974
10.248	0.080	0.348	0.031	3.054
10.328	0.080	0.339	0.031	3.134
10.408	0.080	0.386	0.033	3.214
10.488	0.080	0.367	0.032	3.294
10.568	0.080	0.368	0.032	3.374
10.648	0.080	0.381	0.034	3.454
10.728	0.080	0.409	0.035	3.534
10.808	0.080	0.334	0.031	3.614
10.888	0.080	0.410	0.035	3.694
10.968	0.080	0.394	0.034	3.774
11.048	0.080	0.395	0.034	3.854
11.128	0.080	0.371	0.032	3.934
11.208	0.080	0.389	0.033	4.014
11.288	0.080	0.369	0.032	4.094

Continued on next page

TABLE XXXV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
11.368	0.080	0.368	0.033	4.174
11.448	0.080	0.331	0.030	4.254
11.528	0.080	0.367	0.032	4.334
11.608	0.080	0.366	0.033	4.414
11.688	0.080	0.407	0.034	4.494
11.768	0.080	0.395	0.034	4.574
11.848	0.080	0.420	0.036	4.654
11.928	0.080	0.395	0.034	4.734
12.008	0.080	0.328	0.030	4.814
12.088	0.080	0.353	0.032	4.894
12.168	0.080	0.380	0.033	4.974
12.248	0.080	0.390	0.033	5.054
12.328	0.080	0.430	0.036	5.134
12.408	0.080	0.394	0.035	5.214
12.488	0.080	0.386	0.035	5.294
12.568	0.080	0.365	0.034	5.374
12.648	0.080	0.430	0.037	5.454
12.728	0.080	0.381	0.034	5.534
12.808	0.080	0.412	0.035	5.614
12.888	0.080	0.412	0.035	5.694
12.968	0.080	0.335	0.030	5.774
13.048	0.080	0.363	0.033	5.854
13.128	0.080	0.326	0.031	5.934
13.208	0.080	0.312	0.031	6.014
13.288	0.080	0.427	0.039	6.094
13.368	0.080	0.398	0.038	6.174
13.448	0.080	0.351	0.035	6.254
13.528	0.080	0.431	0.040	6.334
13.608	0.080	0.303	0.033	6.414
13.688	0.080	0.350	0.034	6.494
13.768	0.080	0.373	0.035	6.574
13.848	0.080	0.341	0.033	6.654
13.928	0.080	0.293	0.032	6.734
14.008	0.080	0.264	0.032	6.814
14.088	0.080	0.287	0.038	6.894
14.168	0.080	0.312	0.041	6.974
14.248	0.080	0.340	0.047	7.054
14.328	0.080	0.312	0.042	7.134
14.408	0.080	0.351	0.058	7.214
14.488	0.080	0.334	0.065	7.294
14.568	0.080	0.347	0.050	7.374
14.648	0.080	0.396	0.099	7.454
14.728	0.080	0.495	0.119	7.534
14.808	0.080	0.399	0.116	7.614
14.888	0.080	0.724	0.336	7.694
14.968	0.080	0.175	0.165	7.774
15.048	0.080	0.000	0.056	7.854
15.128	0.080	0.317	0.967	7.934
15.208	0.080	1.187	0.548	8.014
15.288	0.080	1.603	0.260	8.094
15.368	0.080	130.649	27.785	8.174
15.448	0.080	0.000	0.511	8.254
15.528	0.080	0.000	0.670	8.334
15.608	0.080	17.259	1.415	8.414
15.688	0.080	0.000	1.810	8.494
15.768	0.080	0.000	3.684	8.574
15.848	0.080	0.000	9.378	8.654
15.928	0.080	0.000	9.378	8.734
16.008	0.080	0.001	51.581	8.814
16.088	0.080	0.000	0.000	8.894
16.168	0.080	0.000	0.000	8.974

Continued on next page

TABLE XXXV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.248	0.080	0.000	0.000	9.054
16.328	0.080	0.000	0.000	9.134
16.408	0.080	0.000	0.000	9.214
16.488	0.080	0.000	0.000	9.294
16.568	0.080	0.000	0.000	9.374
16.648	0.080	0.000	0.000	9.454
16.728	0.080	0.000	0.000	9.534
16.808	0.080	0.000	0.000	9.614
16.888	0.080	0.000	0.000	9.694
16.968	0.080	0.000	0.000	9.774
17.048	0.080	0.000	0.000	9.854
17.128	0.080	0.000	0.000	9.934
17.208	0.080	0.000	0.000	10.014
17.288	0.080	0.000	0.000	10.094
17.368	0.080	0.000	0.000	10.174
17.448	0.080	0.000	0.000	10.254
17.448	0.080	0.000	0.000	10.254

Appendix B: ^{89}Y(p,d)^{8x}Y Summary of gamma probability figures and tables of data

In the appendix that follows we list all the figures and tables of data of the gamma ray probability data used to determine the cross section for ^{87}Y(n,γ). In the tables below; E_{exc} is the excitation of the nucleus, E_{unc} is the energy uncertainty, P_γ is the gamma ray probability, $P_{\gamma unc}$ is the gamma ray probability uncertainty and E_{cn} is the equivalent neutron energy of the nucleus. Note that 80 keV is the 1σ uncertainty and energy binning used for all the results presented here.

1. ^{88}Y γ-ray 128.100 keV

^{88}Y nucleus
γ-ray observed 128.100 keV
γ-ray originates in initial state at 843.180 keV and goes to final state at 715.160 keV
Initial state is (5)+ and final state is (6)+ transition is type (M1)
Internal conversion coefficent α is 1.260

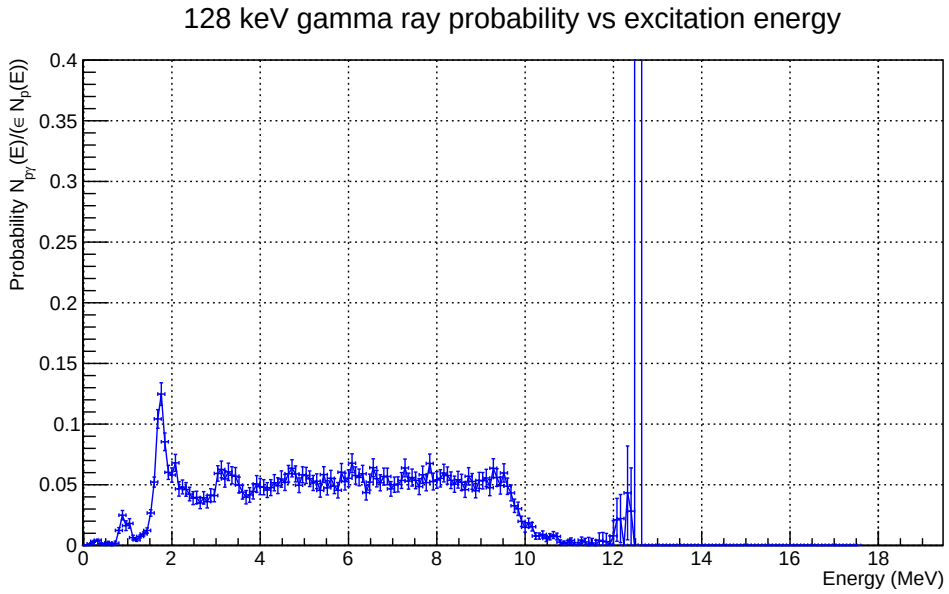

FIG. 54: Gamma ray probability distribution of the 128.100 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XXXVI: ^{89}Y(p,d)^{88}Y probability versus energy for 128.100 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.001	0.001	-9.192
0.240	0.080	0.003	0.001	-9.112
0.320	0.080	0.004	0.001	-9.032
0.400	0.080	0.001	0.001	-8.952
0.480	0.080	0.001	0.001	-8.872
0.560	0.080	0.002	0.001	-8.792
0.640	0.080	0.000	0.002	-8.712
0.720	0.080	0.002	0.002	-8.632
0.800	0.080	0.012	0.002	-8.552
0.880	0.080	0.025	0.004	-8.472
0.960	0.080	0.016	0.004	-8.392
1.040	0.080	0.018	0.004	-8.312
1.120	0.080	0.007	0.002	-8.232
1.200	0.080	0.004	0.001	-8.152
1.280	0.080	0.007	0.001	-8.072
1.360	0.080	0.009	0.002	-7.992
1.440	0.080	0.012	0.002	-7.912
1.520	0.080	0.027	0.003	-7.832
1.600	0.080	0.052	0.004	-7.752

Continued on next page

TABLE XXXVI – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
1.680	0.080	0.104	0.008	-7.672
1.760	0.080	0.125	0.009	-7.592
1.840	0.080	0.085	0.007	-7.512
1.920	0.080	0.060	0.006	-7.432
2.000	0.080	0.058	0.006	-7.352
2.080	0.080	0.068	0.007	-7.272
2.160	0.080	0.047	0.006	-7.192
2.240	0.080	0.048	0.006	-7.112
2.320	0.080	0.046	0.006	-7.032
2.400	0.080	0.042	0.006	-6.952
2.480	0.080	0.039	0.005	-6.872
2.560	0.080	0.040	0.005	-6.792
2.640	0.080	0.035	0.005	-6.712
2.720	0.080	0.039	0.005	-6.632
2.800	0.080	0.036	0.005	-6.552
2.880	0.080	0.041	0.005	-6.472
2.960	0.080	0.041	0.005	-6.392
3.040	0.080	0.059	0.006	-6.312
3.120	0.080	0.063	0.007	-6.232
3.200	0.080	0.055	0.007	-6.152
3.280	0.080	0.061	0.007	-6.072
3.360	0.080	0.058	0.007	-5.992
3.440	0.080	0.057	0.007	-5.912
3.520	0.080	0.050	0.006	-5.832
3.600	0.080	0.044	0.006	-5.752
3.680	0.080	0.040	0.006	-5.672
3.760	0.080	0.042	0.006	-5.592
3.840	0.080	0.045	0.006	-5.512
3.920	0.080	0.051	0.007	-5.432
4.000	0.080	0.049	0.007	-5.352
4.080	0.080	0.048	0.006	-5.272
4.160	0.080	0.046	0.006	-5.192
4.240	0.080	0.048	0.007	-5.112
4.320	0.080	0.052	0.007	-5.032
4.400	0.080	0.049	0.006	-4.952
4.480	0.080	0.055	0.007	-4.872
4.560	0.080	0.052	0.007	-4.792
4.640	0.080	0.059	0.007	-4.712
4.720	0.080	0.064	0.007	-4.632
4.800	0.080	0.059	0.007	-4.552
4.880	0.080	0.050	0.006	-4.472
4.960	0.080	0.058	0.007	-4.392
5.040	0.080	0.058	0.007	-4.312
5.120	0.080	0.055	0.006	-4.232
5.200	0.080	0.052	0.006	-4.152
5.280	0.080	0.053	0.006	-4.072
5.360	0.080	0.045	0.006	-3.992
5.440	0.080	0.058	0.007	-3.912
5.520	0.080	0.047	0.006	-3.832
5.600	0.080	0.055	0.007	-3.752
5.680	0.080	0.049	0.006	-3.672
5.760	0.080	0.045	0.006	-3.592
5.840	0.080	0.060	0.007	-3.512
5.920	0.080	0.053	0.007	-3.432
6.000	0.080	0.055	0.007	-3.352
6.080	0.080	0.068	0.008	-3.272
6.160	0.080	0.058	0.007	-3.192
6.240	0.080	0.056	0.007	-3.112
6.320	0.080	0.059	0.007	-3.032
6.400	0.080	0.044	0.006	-2.952
6.480	0.080	0.052	0.007	-2.872

Continued on next page

TABLE XXXVI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.064	0.007	-2.792
6.640	0.080	0.055	0.007	-2.712
6.720	0.080	0.052	0.007	-2.632
6.800	0.080	0.057	0.007	-2.552
6.880	0.080	0.057	0.007	-2.472
6.960	0.080	0.047	0.006	-2.392
7.040	0.080	0.050	0.006	-2.312
7.120	0.080	0.050	0.006	-2.232
7.200	0.080	0.054	0.007	-2.152
7.280	0.080	0.064	0.007	-2.072
7.360	0.080	0.053	0.007	-1.992
7.440	0.080	0.056	0.007	-1.912
7.520	0.080	0.054	0.007	-1.832
7.600	0.080	0.049	0.007	-1.752
7.680	0.080	0.058	0.007	-1.672
7.760	0.080	0.052	0.007	-1.592
7.840	0.080	0.068	0.008	-1.512
7.920	0.080	0.053	0.007	-1.432
8.000	0.080	0.054	0.007	-1.352
8.080	0.080	0.055	0.007	-1.272
8.160	0.080	0.060	0.007	-1.192
8.240	0.080	0.058	0.007	-1.112
8.320	0.080	0.054	0.007	-1.032
8.400	0.080	0.051	0.007	-0.952
8.480	0.080	0.054	0.007	-0.872
8.560	0.080	0.052	0.007	-0.792
8.640	0.080	0.046	0.006	-0.712
8.720	0.080	0.057	0.007	-0.632
8.800	0.080	0.053	0.006	-0.552
8.880	0.080	0.045	0.006	-0.472
8.960	0.080	0.054	0.007	-0.392
9.040	0.080	0.053	0.007	-0.312
9.120	0.080	0.056	0.007	-0.232
9.200	0.080	0.048	0.007	-0.152
9.280	0.080	0.064	0.008	-0.072
9.360	0.080	0.056	0.007	0.008
9.440	0.080	0.049	0.007	0.088
9.520	0.080	0.060	0.008	0.168
9.600	0.080	0.049	0.007	0.248
9.680	0.080	0.043	0.007	0.328
9.760	0.080	0.033	0.005	0.408
9.840	0.080	0.030	0.005	0.488
9.920	0.080	0.020	0.004	0.568
10.000	0.080	0.015	0.004	0.648
10.080	0.080	0.019	0.004	0.728
10.160	0.080	0.015	0.004	0.808
10.240	0.080	0.008	0.003	0.888
10.320	0.080	0.008	0.003	0.968
10.400	0.080	0.009	0.003	1.048
10.480	0.080	0.006	0.003	1.128
10.560	0.080	0.007	0.003	1.208
10.640	0.080	0.009	0.003	1.288
10.720	0.080	0.007	0.003	1.368
10.800	0.080	0.003	0.002	1.448
10.880	0.080	0.002	0.002	1.528
10.960	0.080	0.002	0.002	1.608
11.040	0.080	0.004	0.002	1.688
11.120	0.080	0.001	0.002	1.768
11.200	0.080	0.001	0.002	1.848
11.280	0.080	0.004	0.003	1.928
11.360	0.080	0.003	0.003	2.008

Continued on next page

TABLE XXXVI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.007	2.088
11.520	0.080	0.002	0.004	2.168
11.600	0.080	0.000	0.004	2.248
11.680	0.080	0.004	0.006	2.328
11.760	0.080	0.003	0.007	2.408
11.840	0.080	0.003	0.007	2.488
11.920	0.080	0.001	0.007	2.568
12.000	0.080	0.008	0.013	2.648
12.080	0.080	0.021	0.018	2.728
12.160	0.080	0.022	0.020	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.043	0.039	2.968
12.400	0.080	0.028	0.036	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	27092.605	13835023.000	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XXXVI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

2. ^{88}Y γ-ray 141.590 keV

^{88}Y nucleus
γ-ray observed 141.590 keV
γ-ray originates in initial state at 984.830 keV and goes to final state at 843.180 keV
Initial state is (4)+ and final state is (5)+ transition is type (M1)
Internal conversion coefficent α is 1.180

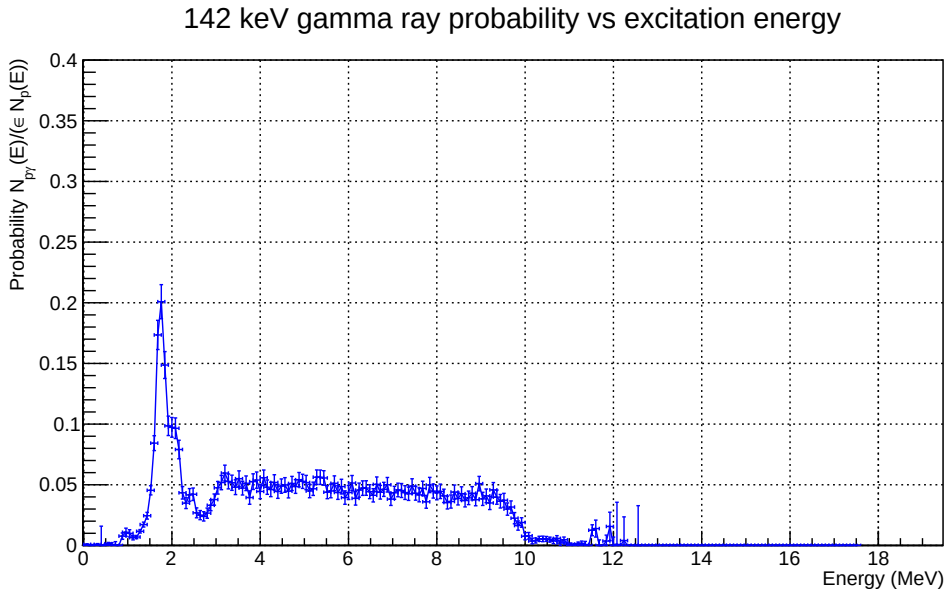

FIG. 55: Gamma ray probability distribution of the 141.590 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XXXVII: ^{89}Y(p,d)^{88}Y probability versus energy for 141.590 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.001	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.001	-9.112
0.320	0.080	0.001	0.001	-9.032
0.400	0.080	0.000	0.016	-8.952
0.480	0.080	0.000	0.001	-8.872
0.560	0.080	0.002	0.001	-8.792
0.640	0.080	0.000	0.002	-8.712
0.720	0.080	0.000	0.003	-8.632
0.800	0.080	0.000	0.000	-8.552
0.880	0.080	0.008	0.003	-8.472
0.960	0.080	0.011	0.003	-8.392
1.040	0.080	0.010	0.003	-8.312
1.120	0.080	0.006	0.002	-8.232
1.200	0.080	0.007	0.001	-8.152
1.280	0.080	0.012	0.001	-8.072
1.360	0.080	0.017	0.002	-7.992
1.440	0.080	0.024	0.003	-7.912
1.520	0.080	0.045	0.004	-7.832
1.600	0.080	0.084	0.006	-7.752

Continued on next page

TABLE XXXVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.174	0.012	-7.672
1.760	0.080	0.201	0.014	-7.592
1.840	0.080	0.149	0.011	-7.512
1.920	0.080	0.099	0.008	-7.432
2.000	0.080	0.097	0.008	-7.352
2.080	0.080	0.097	0.009	-7.272
2.160	0.080	0.079	0.008	-7.192
2.240	0.080	0.043	0.005	-7.112
2.320	0.080	0.035	0.004	-7.032
2.400	0.080	0.042	0.005	-6.952
2.480	0.080	0.042	0.005	-6.872
2.560	0.080	0.027	0.004	-6.792
2.640	0.080	0.025	0.004	-6.712
2.720	0.080	0.024	0.004	-6.632
2.800	0.080	0.027	0.004	-6.552
2.880	0.080	0.033	0.004	-6.472
2.960	0.080	0.038	0.005	-6.392
3.040	0.080	0.047	0.005	-6.312
3.120	0.080	0.052	0.006	-6.232
3.200	0.080	0.060	0.007	-6.152
3.280	0.080	0.053	0.006	-6.072
3.360	0.080	0.052	0.006	-5.992
3.440	0.080	0.048	0.006	-5.912
3.520	0.080	0.055	0.006	-5.832
3.600	0.080	0.047	0.006	-5.752
3.680	0.080	0.051	0.006	-5.672
3.760	0.080	0.040	0.006	-5.592
3.840	0.080	0.053	0.006	-5.512
3.920	0.080	0.054	0.007	-5.432
4.000	0.080	0.045	0.006	-5.352
4.080	0.080	0.056	0.006	-5.272
4.160	0.080	0.048	0.006	-5.192
4.240	0.080	0.046	0.006	-5.112
4.320	0.080	0.052	0.006	-5.032
4.400	0.080	0.045	0.006	-4.952
4.480	0.080	0.049	0.006	-4.872
4.560	0.080	0.050	0.006	-4.792
4.640	0.080	0.045	0.006	-4.712
4.720	0.080	0.051	0.006	-4.632
4.800	0.080	0.049	0.006	-4.552
4.880	0.080	0.054	0.006	-4.472
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6.240	0.080	0.046	0.006	-3.112
6.320	0.080	0.047	0.006	-3.032
6.400	0.080	0.047	0.006	-2.952
6.480	0.080	0.044	0.006	-2.872

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TABLE XXXVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.041	0.005	-2.792
6.640	0.080	0.050	0.006	-2.712
6.720	0.080	0.044	0.006	-2.632
6.800	0.080	0.046	0.006	-2.552
6.880	0.080	0.050	0.006	-2.472
6.960	0.080	0.038	0.005	-2.392
7.040	0.080	0.043	0.005	-2.312
7.120	0.080	0.046	0.006	-2.232
7.200	0.080	0.045	0.006	-2.152
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7.360	0.080	0.043	0.005	-1.992
7.440	0.080	0.049	0.006	-1.912
7.520	0.080	0.043	0.006	-1.832
7.600	0.080	0.042	0.006	-1.752
7.680	0.080	0.047	0.006	-1.672
7.760	0.080	0.036	0.005	-1.592
7.840	0.080	0.050	0.006	-1.512
7.920	0.080	0.045	0.006	-1.432
8.000	0.080	0.043	0.006	-1.352
8.080	0.080	0.045	0.006	-1.272
8.160	0.080	0.041	0.005	-1.192
8.240	0.080	0.035	0.005	-1.112
8.320	0.080	0.036	0.005	-1.032
8.400	0.080	0.044	0.006	-0.952
8.480	0.080	0.039	0.005	-0.872
8.560	0.080	0.043	0.006	-0.792
8.640	0.080	0.037	0.005	-0.712
8.720	0.080	0.039	0.006	-0.632
8.800	0.080	0.043	0.005	-0.552
8.880	0.080	0.038	0.005	-0.472
8.960	0.080	0.051	0.006	-0.392
9.040	0.080	0.038	0.005	-0.312
9.120	0.080	0.041	0.006	-0.232
9.200	0.080	0.035	0.005	-0.152
9.280	0.080	0.046	0.006	-0.072
9.360	0.080	0.040	0.006	0.008
9.440	0.080	0.036	0.006	0.088
9.520	0.080	0.037	0.006	0.168
9.600	0.080	0.030	0.005	0.248
9.680	0.080	0.032	0.005	0.328
9.760	0.080	0.023	0.005	0.408
9.840	0.080	0.016	0.004	0.488
9.920	0.080	0.019	0.004	0.568
10.000	0.080	0.008	0.003	0.648
10.080	0.080	0.008	0.003	0.728
10.160	0.080	0.004	0.002	0.808
10.240	0.080	0.004	0.002	0.888
10.320	0.080	0.005	0.002	0.968
10.400	0.080	0.005	0.002	1.048
10.480	0.080	0.005	0.002	1.128
10.560	0.080	0.005	0.002	1.208
10.640	0.080	0.004	0.002	1.288
10.720	0.080	0.006	0.002	1.368
10.800	0.080	0.002	0.002	1.448
10.880	0.080	0.005	0.002	1.528
10.960	0.080	0.001	0.002	1.608
11.040	0.080	0.000	0.001	1.688
11.120	0.080	0.000	0.001	1.768
11.200	0.080	0.001	0.002	1.848
11.280	0.080	0.002	0.002	1.928
11.360	0.080	0.001	0.003	2.008

Continued on next page

TABLE XXXVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.000	2.088
11.520	0.080	0.013	0.004	2.168
11.600	0.080	0.014	0.007	2.248
11.680	0.080	0.000	0.005	2.328
11.760	0.080	0.000	0.000	2.408
11.840	0.080	0.004	0.005	2.488
11.920	0.080	0.016	0.012	2.568
12.000	0.080	0.000	0.007	2.648
12.080	0.080	0.001	0.035	2.728
12.160	0.080	0.000	0.000	2.808
12.240	0.080	0.004	0.020	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.033	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XXXVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

3. ^{88}Y γ-ray 231.929 keV

^{88}Y nucleus
γ-ray observed 231.929 keV
γ-ray originates in initial state at 231.929 keV and goes to final state at 0.000 keV
Initial state is (5)- and final state is 4- transition is type (M1)
Internal conversion coefficent α is 1.019

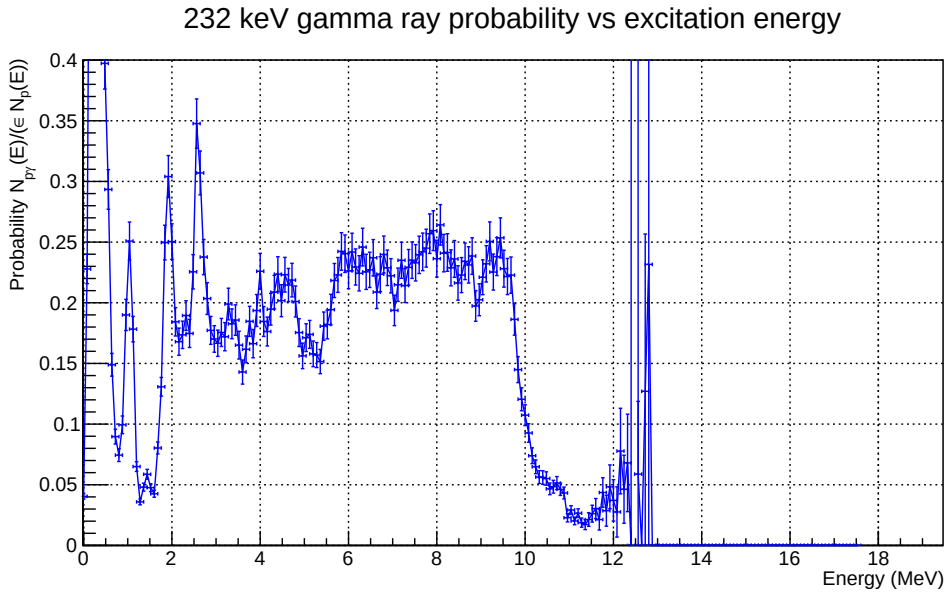

FIG. 56: Gamma ray probability distribution of the 231.929 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XXXVIII: ^{89}Y(p,d)^{88}Y probability versus energy for 231.929 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.041	0.002	-9.352
0.080	0.080	0.228	0.012	-9.272
0.160	0.080	0.765	0.040	-9.192
0.240	0.080	0.965	0.050	-9.112
0.320	0.080	0.850	0.044	-9.032
0.400	0.080	0.534	0.028	-8.952
0.480	0.080	0.397	0.021	-8.872
0.560	0.080	0.293	0.016	-8.792
0.640	0.080	0.149	0.009	-8.712
0.720	0.080	0.090	0.006	-8.632
0.800	0.080	0.074	0.005	-8.552
0.880	0.080	0.099	0.007	-8.472
0.960	0.080	0.190	0.013	-8.392
1.040	0.080	0.251	0.016	-8.312
1.120	0.080	0.178	0.010	-8.232
1.200	0.080	0.065	0.004	-8.152
1.280	0.080	0.036	0.002	-8.072
1.360	0.080	0.048	0.003	-7.992
1.440	0.080	0.059	0.004	-7.912
1.520	0.080	0.048	0.003	-7.832
1.600	0.080	0.043	0.003	-7.752

Continued on next page

TABLE XXXVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.080	0.005	-7.672
1.760	0.080	0.131	0.008	-7.592
1.840	0.080	0.250	0.014	-7.512
1.920	0.080	0.304	0.017	-7.432
2.000	0.080	0.250	0.015	-7.352
2.080	0.080	0.184	0.012	-7.272
2.160	0.080	0.168	0.011	-7.192
2.240	0.080	0.174	0.011	-7.112
2.320	0.080	0.190	0.012	-7.032
2.400	0.080	0.175	0.012	-6.952
2.480	0.080	0.226	0.014	-6.872
2.560	0.080	0.348	0.020	-6.792
2.640	0.080	0.307	0.018	-6.712
2.720	0.080	0.238	0.015	-6.632
2.800	0.080	0.204	0.013	-6.552
2.880	0.080	0.177	0.012	-6.472
2.960	0.080	0.170	0.011	-6.392
3.040	0.080	0.167	0.011	-6.312
3.120	0.080	0.176	0.012	-6.232
3.200	0.080	0.172	0.012	-6.152
3.280	0.080	0.199	0.013	-6.072
3.360	0.080	0.183	0.012	-5.992
3.440	0.080	0.186	0.013	-5.912
3.520	0.080	0.165	0.011	-5.832
3.600	0.080	0.143	0.010	-5.752
3.680	0.080	0.162	0.011	-5.672
3.760	0.080	0.185	0.012	-5.592
3.840	0.080	0.166	0.012	-5.512
3.920	0.080	0.194	0.013	-5.432
4.000	0.080	0.226	0.015	-5.352
4.080	0.080	0.185	0.012	-5.272
4.160	0.080	0.176	0.012	-5.192
4.240	0.080	0.195	0.013	-5.112
4.320	0.080	0.209	0.014	-5.032
4.400	0.080	0.224	0.014	-4.952
4.480	0.080	0.202	0.013	-4.872
4.560	0.080	0.223	0.014	-4.792
4.640	0.080	0.215	0.014	-4.712
4.720	0.080	0.219	0.014	-4.632
4.800	0.080	0.201	0.013	-4.552
4.880	0.080	0.175	0.011	-4.472
4.960	0.080	0.156	0.010	-4.392
5.040	0.080	0.171	0.011	-4.312
5.120	0.080	0.174	0.012	-4.232
5.200	0.080	0.158	0.011	-4.152
5.280	0.080	0.157	0.010	-4.072
5.360	0.080	0.152	0.010	-3.992
5.440	0.080	0.181	0.012	-3.912
5.520	0.080	0.182	0.012	-3.832
5.600	0.080	0.194	0.013	-3.752
5.680	0.080	0.218	0.014	-3.672
5.760	0.080	0.223	0.014	-3.592
5.840	0.080	0.242	0.015	-3.512
5.920	0.080	0.240	0.015	-3.432
6.000	0.080	0.226	0.015	-3.352
6.080	0.080	0.242	0.016	-3.272
6.160	0.080	0.229	0.015	-3.192
6.240	0.080	0.224	0.015	-3.112
6.320	0.080	0.246	0.016	-3.032
6.400	0.080	0.226	0.014	-2.952
6.480	0.080	0.227	0.015	-2.872

Continued on next page

TABLE XXXVIII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.560	0.080	0.237	0.015	-2.792
6.640	0.080	0.209	0.014	-2.712
6.720	0.080	0.224	0.014	-2.632
6.800	0.080	0.240	0.015	-2.552
6.880	0.080	0.229	0.015	-2.472
6.960	0.080	0.222	0.014	-2.392
7.040	0.080	0.194	0.013	-2.312
7.120	0.080	0.215	0.014	-2.232
7.200	0.080	0.235	0.015	-2.152
7.280	0.080	0.214	0.014	-2.072
7.360	0.080	0.229	0.015	-1.992
7.440	0.080	0.235	0.015	-1.912
7.520	0.080	0.233	0.015	-1.832
7.600	0.080	0.240	0.015	-1.752
7.680	0.080	0.242	0.015	-1.672
7.760	0.080	0.245	0.016	-1.592
7.840	0.080	0.257	0.016	-1.512
7.920	0.080	0.259	0.016	-1.432
8.000	0.080	0.236	0.015	-1.352
8.080	0.080	0.264	0.017	-1.272
8.160	0.080	0.241	0.015	-1.192
8.240	0.080	0.241	0.015	-1.112
8.320	0.080	0.229	0.015	-1.032
8.400	0.080	0.236	0.015	-0.952
8.480	0.080	0.216	0.014	-0.872
8.560	0.080	0.223	0.014	-0.792
8.640	0.080	0.234	0.015	-0.712
8.720	0.080	0.231	0.015	-0.632
8.800	0.080	0.238	0.015	-0.552
8.880	0.080	0.197	0.013	-0.472
8.960	0.080	0.203	0.013	-0.392
9.040	0.080	0.221	0.014	-0.312
9.120	0.080	0.232	0.015	-0.232
9.200	0.080	0.250	0.016	-0.152
9.280	0.080	0.225	0.015	-0.072
9.360	0.080	0.238	0.016	0.008
9.440	0.080	0.254	0.016	0.088
9.520	0.080	0.228	0.015	0.168
9.600	0.080	0.222	0.015	0.248
9.680	0.080	0.223	0.015	0.328
9.760	0.080	0.186	0.013	0.408
9.840	0.080	0.145	0.011	0.488
9.920	0.080	0.120	0.009	0.568
10.000	0.080	0.107	0.009	0.648
10.080	0.080	0.093	0.008	0.728
10.160	0.080	0.074	0.007	0.808
10.240	0.080	0.065	0.006	0.888
10.320	0.080	0.056	0.005	0.968
10.400	0.080	0.056	0.006	1.048
10.480	0.080	0.055	0.005	1.128
10.560	0.080	0.047	0.005	1.208
10.640	0.080	0.048	0.005	1.288
10.720	0.080	0.051	0.005	1.368
10.800	0.080	0.046	0.005	1.448
10.880	0.080	0.043	0.005	1.528
10.960	0.080	0.023	0.003	1.608
11.040	0.080	0.029	0.004	1.688
11.120	0.080	0.020	0.003	1.768
11.200	0.080	0.027	0.004	1.848
11.280	0.080	0.019	0.004	1.928
11.360	0.080	0.017	0.004	2.008

Continued on next page

TABLE XXXVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.021	0.006	2.088
11.520	0.080	0.026	0.007	2.168
11.600	0.080	0.030	0.008	2.248
11.680	0.080	0.021	0.009	2.328
11.760	0.080	0.044	0.012	2.408
11.840	0.080	0.029	0.013	2.488
11.920	0.080	0.048	0.018	2.568
12.000	0.080	0.037	0.017	2.648
12.080	0.080	0.028	0.021	2.728
12.160	0.080	0.078	0.035	2.808
12.240	0.080	0.046	0.028	2.888
12.320	0.080	0.068	0.040	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	14.856	17.516	3.128
12.560	0.080	0.059	0.060	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.127	0.130	3.368
12.800	0.080	0.232	0.236	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XXXVIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

4. ^{88}Y γ-ray 299.100 keV

^{88}Y nucleus
γ-ray observed 299.100 keV
γ-ray originates in initial state at 1283.810 keV and goes to final state at 984.660 keV
Initial state is (3,4,5)+ and final state is (4)+ transition is type (M1)
Internal conversion coefficent α is 1.010

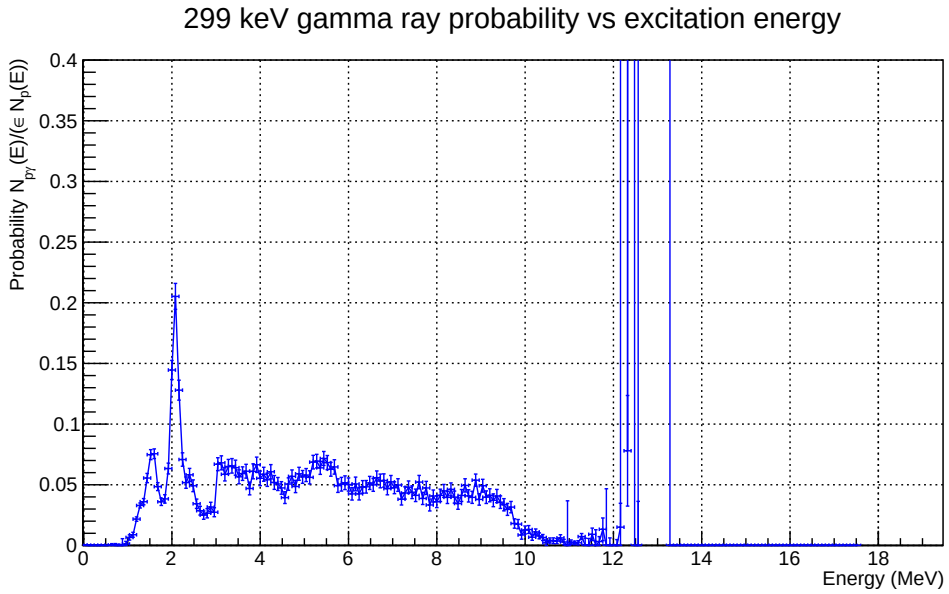

FIG. 57: Gamma ray probability distribution of the 299.100 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XXXIX: ^{89}Y(p,d)^{88}Y probability versus energy for 299.100 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.001	-8.712
0.720	0.080	0.000	0.002	-8.632
0.800	0.080	0.000	0.001	-8.552
0.880	0.080	0.000	0.006	-8.472
0.960	0.080	0.001	0.002	-8.392
1.040	0.080	0.007	0.002	-8.312
1.120	0.080	0.009	0.002	-8.232
1.200	0.080	0.022	0.002	-8.152
1.280	0.080	0.033	0.002	-8.072
1.360	0.080	0.036	0.003	-7.992
1.440	0.080	0.056	0.004	-7.912
1.520	0.080	0.075	0.004	-7.832
1.600	0.080	0.076	0.004	-7.752

Continued on next page

TABLE XXXIX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.049	0.003	-7.672
1.760	0.080	0.036	0.003	-7.592
1.840	0.080	0.038	0.003	-7.512
1.920	0.080	0.063	0.004	-7.432
2.000	0.080	0.145	0.008	-7.352
2.080	0.080	0.205	0.011	-7.272
2.160	0.080	0.128	0.008	-7.192
2.240	0.080	0.071	0.006	-7.112
2.320	0.080	0.052	0.005	-7.032
2.400	0.080	0.058	0.005	-6.952
2.480	0.080	0.049	0.005	-6.872
2.560	0.080	0.034	0.004	-6.792
2.640	0.080	0.029	0.004	-6.712
2.720	0.080	0.025	0.003	-6.632
2.800	0.080	0.026	0.004	-6.552
2.880	0.080	0.032	0.004	-6.472
2.960	0.080	0.027	0.004	-6.392
3.040	0.080	0.067	0.005	-6.312
3.120	0.080	0.068	0.006	-6.232
3.200	0.080	0.059	0.005	-6.152
3.280	0.080	0.065	0.006	-6.072
3.360	0.080	0.066	0.006	-5.992
3.440	0.080	0.064	0.006	-5.912
3.520	0.080	0.057	0.006	-5.832
3.600	0.080	0.059	0.006	-5.752
3.680	0.080	0.061	0.006	-5.672
3.760	0.080	0.047	0.005	-5.592
3.840	0.080	0.061	0.006	-5.512
3.920	0.080	0.067	0.006	-5.432
4.000	0.080	0.055	0.006	-5.352
4.080	0.080	0.059	0.006	-5.272
4.160	0.080	0.054	0.005	-5.192
4.240	0.080	0.061	0.006	-5.112
4.320	0.080	0.052	0.006	-5.032
4.400	0.080	0.051	0.005	-4.952
4.480	0.080	0.047	0.005	-4.872
4.560	0.080	0.039	0.005	-4.792
4.640	0.080	0.051	0.005	-4.712
4.720	0.080	0.057	0.005	-4.632
4.800	0.080	0.049	0.005	-4.552
4.880	0.080	0.059	0.005	-4.472
4.960	0.080	0.056	0.005	-4.392
5.040	0.080	0.058	0.005	-4.312
5.120	0.080	0.056	0.005	-4.232
5.200	0.080	0.069	0.006	-4.152
5.280	0.080	0.069	0.006	-4.072
5.360	0.080	0.064	0.005	-3.992
5.440	0.080	0.072	0.006	-3.912
5.520	0.080	0.068	0.006	-3.832
5.600	0.080	0.063	0.006	-3.752
5.680	0.080	0.065	0.006	-3.672
5.760	0.080	0.049	0.006	-3.592
5.840	0.080	0.051	0.006	-3.512
5.920	0.080	0.052	0.006	-3.432
6.000	0.080	0.050	0.005	-3.352
6.080	0.080	0.043	0.005	-3.272
6.160	0.080	0.051	0.006	-3.192
6.240	0.080	0.043	0.005	-3.112
6.320	0.080	0.048	0.005	-3.032
6.400	0.080	0.048	0.005	-2.952
6.480	0.080	0.052	0.005	-2.872

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TABLE XXXIX – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
6.560	0.080	0.050	0.005	-2.792
6.640	0.080	0.056	0.006	-2.712
6.720	0.080	0.053	0.006	-2.632
6.800	0.080	0.054	0.005	-2.552
6.880	0.080	0.047	0.005	-2.472
6.960	0.080	0.052	0.005	-2.392
7.040	0.080	0.047	0.005	-2.312
7.120	0.080	0.050	0.005	-2.232
7.200	0.080	0.038	0.005	-2.152
7.280	0.080	0.043	0.005	-2.072
7.360	0.080	0.048	0.005	-1.992
7.440	0.080	0.044	0.005	-1.912
7.520	0.080	0.041	0.005	-1.832
7.600	0.080	0.052	0.006	-1.752
7.680	0.080	0.039	0.005	-1.672
7.760	0.080	0.047	0.005	-1.592
7.840	0.080	0.033	0.005	-1.512
7.920	0.080	0.041	0.005	-1.432
8.000	0.080	0.036	0.005	-1.352
8.080	0.080	0.041	0.005	-1.272
8.160	0.080	0.045	0.005	-1.192
8.240	0.080	0.040	0.005	-1.112
8.320	0.080	0.046	0.005	-1.032
8.400	0.080	0.040	0.005	-0.952
8.480	0.080	0.034	0.005	-0.872
8.560	0.080	0.041	0.005	-0.792
8.640	0.080	0.049	0.005	-0.712
8.720	0.080	0.041	0.005	-0.632
8.800	0.080	0.040	0.005	-0.552
8.880	0.080	0.054	0.005	-0.472
8.960	0.080	0.038	0.005	-0.392
9.040	0.080	0.049	0.005	-0.312
9.120	0.080	0.040	0.005	-0.232
9.200	0.080	0.041	0.005	-0.152
9.280	0.080	0.037	0.005	-0.072
9.360	0.080	0.041	0.005	0.008
9.440	0.080	0.036	0.005	0.088
9.520	0.080	0.034	0.005	0.168
9.600	0.080	0.030	0.005	0.248
9.680	0.080	0.032	0.005	0.328
9.760	0.080	0.018	0.004	0.408
9.840	0.080	0.018	0.004	0.488
9.920	0.080	0.009	0.003	0.568
10.000	0.080	0.013	0.003	0.648
10.080	0.080	0.013	0.003	0.728
10.160	0.080	0.007	0.003	0.808
10.240	0.080	0.011	0.002	0.888
10.320	0.080	0.008	0.002	0.968
10.400	0.080	0.007	0.002	1.048
10.480	0.080	0.002	0.002	1.128
10.560	0.080	0.004	0.002	1.208
10.640	0.080	0.004	0.002	1.288
10.720	0.080	0.004	0.002	1.368
10.800	0.080	0.006	0.003	1.448
10.880	0.080	0.003	0.002	1.528
10.960	0.080	0.000	0.037	1.608
11.040	0.080	0.003	0.002	1.688
11.120	0.080	0.002	0.001	1.768
11.200	0.080	0.002	0.002	1.848
11.280	0.080	0.007	0.003	1.928
11.360	0.080	0.000	0.006	2.008

Continued on next page

TABLE XXXIX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.006	2.088
11.520	0.080	0.009	0.005	2.168
11.600	0.080	0.000	0.013	2.248
11.680	0.080	0.003	0.004	2.328
11.760	0.080	0.013	0.009	2.408
11.840	0.080	0.000	0.047	2.488
11.920	0.080	0.000	0.006	2.568
12.000	0.080	0.000	0.000	2.648
12.080	0.080	0.000	0.005	2.728
12.160	0.080	0.015	0.020	2.808
12.240	0.080	480961.156	3939360.250	2.888
12.320	0.080	0.078	0.046	2.968
12.400	0.080	13.154	11.851	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.036	3.208
12.640	0.080	38.156	34.376	3.288
12.720	0.080	56.482	50.887	3.368
12.800	0.080	102.996	92.794	3.448
12.880	0.080	171.288	154.320	3.528
12.960	0.080	404.063	364.037	3.608
13.040	0.080	984.904	887.341	3.688
13.120	0.080	2251.209	2028.207	3.768
13.200	0.080	15758.465	14197.449	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XXXIX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

5. ^{88}Y γ-ray 313.880 keV

^{88}Y nucleus
γ-ray observed 313.880 keV
γ-ray originates in initial state at 706.720 keV and goes to final state at 392.860 keV
Initial state is (2)- and final state is 1+ transition is type (E1)
Internal conversion coefficent α is 1.021

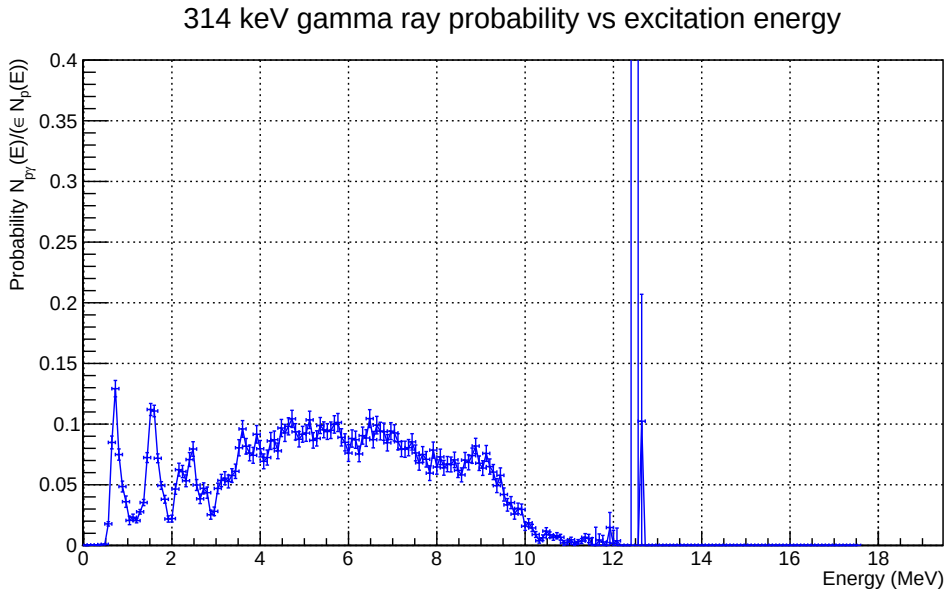

FIG. 58: Gamma ray probability distribution of the 313.880 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XL: ^{89}Y(p,d)^{88}Y probability versus energy for 313.880 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.001	0.000	-8.952
0.480	0.080	0.001	0.000	-8.872
0.560	0.080	0.018	0.002	-8.792
0.640	0.080	0.085	0.005	-8.712
0.720	0.080	0.129	0.007	-8.632
0.800	0.080	0.075	0.005	-8.552
0.880	0.080	0.049	0.004	-8.472
0.960	0.080	0.036	0.005	-8.392
1.040	0.080	0.021	0.003	-8.312
1.120	0.080	0.023	0.003	-8.232
1.200	0.080	0.021	0.002	-8.152
1.280	0.080	0.028	0.002	-8.072
1.360	0.080	0.035	0.003	-7.992
1.440	0.080	0.072	0.004	-7.912
1.520	0.080	0.112	0.005	-7.832
1.600	0.080	0.111	0.005	-7.752

Continued on next page

TABLE XL – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.072	0.004	-7.672
1.760	0.080	0.049	0.003	-7.592
1.840	0.080	0.038	0.003	-7.512
1.920	0.080	0.022	0.003	-7.432
2.000	0.080	0.022	0.003	-7.352
2.080	0.080	0.047	0.004	-7.272
2.160	0.080	0.062	0.005	-7.192
2.240	0.080	0.061	0.005	-7.112
2.320	0.080	0.053	0.005	-7.032
2.400	0.080	0.071	0.006	-6.952
2.480	0.080	0.079	0.006	-6.872
2.560	0.080	0.050	0.004	-6.792
2.640	0.080	0.038	0.004	-6.712
2.720	0.080	0.047	0.005	-6.632
2.800	0.080	0.043	0.005	-6.552
2.880	0.080	0.025	0.004	-6.472
2.960	0.080	0.028	0.004	-6.392
3.040	0.080	0.047	0.004	-6.312
3.120	0.080	0.054	0.005	-6.232
3.200	0.080	0.055	0.005	-6.152
3.280	0.080	0.053	0.005	-6.072
3.360	0.080	0.058	0.006	-5.992
3.440	0.080	0.061	0.006	-5.912
3.520	0.080	0.080	0.007	-5.832
3.600	0.080	0.096	0.007	-5.752
3.680	0.080	0.082	0.006	-5.672
3.760	0.080	0.076	0.006	-5.592
3.840	0.080	0.074	0.007	-5.512
3.920	0.080	0.092	0.007	-5.432
4.000	0.080	0.080	0.007	-5.352
4.080	0.080	0.069	0.006	-5.272
4.160	0.080	0.072	0.006	-5.192
4.240	0.080	0.086	0.007	-5.112
4.320	0.080	0.087	0.007	-5.032
4.400	0.080	0.078	0.006	-4.952
4.480	0.080	0.097	0.007	-4.872
4.560	0.080	0.093	0.007	-4.792
4.640	0.080	0.098	0.007	-4.712
4.720	0.080	0.104	0.007	-4.632
4.800	0.080	0.094	0.007	-4.552
4.880	0.080	0.087	0.006	-4.472
4.960	0.080	0.092	0.007	-4.392
5.040	0.080	0.093	0.007	-4.312
5.120	0.080	0.104	0.007	-4.232
5.200	0.080	0.087	0.006	-4.152
5.280	0.080	0.088	0.006	-4.072
5.360	0.080	0.099	0.007	-3.992
5.440	0.080	0.095	0.007	-3.912
5.520	0.080	0.094	0.007	-3.832
5.600	0.080	0.095	0.007	-3.752
5.680	0.080	0.100	0.007	-3.672
5.760	0.080	0.101	0.007	-3.592
5.840	0.080	0.089	0.007	-3.512
5.920	0.080	0.085	0.007	-3.432
6.000	0.080	0.076	0.007	-3.352
6.080	0.080	0.088	0.007	-3.272
6.160	0.080	0.087	0.007	-3.192
6.240	0.080	0.075	0.006	-3.112
6.320	0.080	0.090	0.007	-3.032
6.400	0.080	0.089	0.007	-2.952
6.480	0.080	0.105	0.007	-2.872

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TABLE XL – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.087	0.007	-2.792
6.640	0.080	0.099	0.007	-2.712
6.720	0.080	0.094	0.007	-2.632
6.800	0.080	0.094	0.007	-2.552
6.880	0.080	0.085	0.007	-2.472
6.960	0.080	0.094	0.007	-2.392
7.040	0.080	0.093	0.007	-2.312
7.120	0.080	0.086	0.007	-2.232
7.200	0.080	0.079	0.006	-2.152
7.280	0.080	0.079	0.007	-2.072
7.360	0.080	0.081	0.007	-1.992
7.440	0.080	0.085	0.007	-1.912
7.520	0.080	0.076	0.007	-1.832
7.600	0.080	0.068	0.006	-1.752
7.680	0.080	0.075	0.007	-1.672
7.760	0.080	0.071	0.006	-1.592
7.840	0.080	0.060	0.006	-1.512
7.920	0.080	0.079	0.007	-1.432
8.000	0.080	0.065	0.006	-1.352
8.080	0.080	0.073	0.006	-1.272
8.160	0.080	0.064	0.006	-1.192
8.240	0.080	0.067	0.006	-1.112
8.320	0.080	0.067	0.006	-1.032
8.400	0.080	0.071	0.006	-0.952
8.480	0.080	0.062	0.006	-0.872
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8.720	0.080	0.068	0.006	-0.632
8.800	0.080	0.074	0.006	-0.552
8.880	0.080	0.082	0.006	-0.472
8.960	0.080	0.068	0.006	-0.392
9.040	0.080	0.064	0.006	-0.312
9.120	0.080	0.076	0.007	-0.232
9.200	0.080	0.065	0.006	-0.152
9.280	0.080	0.060	0.006	-0.072
9.360	0.080	0.049	0.006	0.008
9.440	0.080	0.058	0.006	0.088
9.520	0.080	0.042	0.005	0.168
9.600	0.080	0.034	0.005	0.248
9.680	0.080	0.035	0.005	0.328
9.760	0.080	0.026	0.004	0.408
9.840	0.080	0.031	0.004	0.488
9.920	0.080	0.030	0.004	0.568
10.000	0.080	0.016	0.003	0.648
10.080	0.080	0.019	0.003	0.728
10.160	0.080	0.014	0.003	0.808
10.240	0.080	0.009	0.002	0.888
10.320	0.080	0.004	0.002	0.968
10.400	0.080	0.006	0.002	1.048
10.480	0.080	0.012	0.003	1.128
10.560	0.080	0.009	0.002	1.208
10.640	0.080	0.007	0.002	1.288
10.720	0.080	0.008	0.003	1.368
10.800	0.080	0.007	0.002	1.448
10.880	0.080	0.002	0.002	1.528
10.960	0.080	0.002	0.002	1.608
11.040	0.080	0.005	0.002	1.688
11.120	0.080	0.001	0.002	1.768
11.200	0.080	0.003	0.002	1.848
11.280	0.080	0.004	0.002	1.928
11.360	0.080	0.007	0.003	2.008

Continued on next page

TABLE XL – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.006	0.003	2.088
11.520	0.080	0.001	0.006	2.168
11.600	0.080	0.000	0.015	2.248
11.680	0.080	0.004	0.005	2.328
11.760	0.080	0.003	0.005	2.408
11.840	0.080	0.000	0.003	2.488
11.920	0.080	0.015	0.012	2.568
12.000	0.080	0.002	0.011	2.648
12.080	0.080	0.004	0.011	2.728
12.160	0.080	0.000	0.000	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	1217629.250	18841454.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.102	0.105	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XL – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

6. ^{88}Y γ-ray 349.570 keV

^{88}Y nucleus
γ-ray observed 349.570 keV
γ-ray originates in initial state at 1570.370 keV and goes to final state at 1220.830 keV
Initial state is () and final state is (0,1)+ transition is type (X)
Internal conversion coefficent α is 1.008

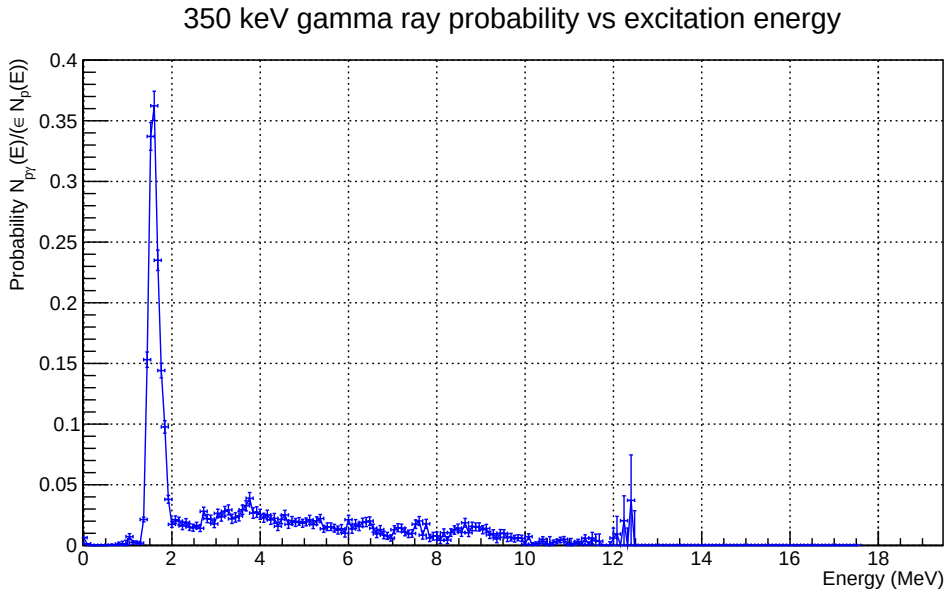

FIG. 59: Gamma ray probability distribution of the 349.570 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLI: ^{89}Y(p,d)^{88}Y probability versus energy for 349.570 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.006	0.000	-9.352
0.080	0.080	0.001	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.001	-8.712
0.720	0.080	0.000	0.000	-8.632
0.800	0.080	0.001	0.002	-8.552
0.880	0.080	0.001	0.002	-8.472
0.960	0.080	0.000	0.004	-8.392
1.040	0.080	0.007	0.002	-8.312
1.120	0.080	0.002	0.002	-8.232
1.200	0.080	0.002	0.001	-8.152
1.280	0.080	0.002	0.001	-8.072
1.360	0.080	0.021	0.002	-7.992
1.440	0.080	0.153	0.006	-7.912
1.520	0.080	0.337	0.011	-7.832
1.600	0.080	0.362	0.012	-7.752

Continued on next page

TABLE XLI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.235	0.008	-7.672
1.760	0.080	0.144	0.006	-7.592
1.840	0.080	0.098	0.005	-7.512
1.920	0.080	0.038	0.003	-7.432
2.000	0.080	0.017	0.002	-7.352
2.080	0.080	0.021	0.003	-7.272
2.160	0.080	0.020	0.003	-7.192
2.240	0.080	0.016	0.003	-7.112
2.320	0.080	0.019	0.003	-7.032
2.400	0.080	0.015	0.003	-6.952
2.480	0.080	0.015	0.003	-6.872
2.560	0.080	0.016	0.003	-6.792
2.640	0.080	0.014	0.003	-6.712
2.720	0.080	0.028	0.003	-6.632
2.800	0.080	0.022	0.003	-6.552
2.880	0.080	0.022	0.003	-6.472
2.960	0.080	0.018	0.003	-6.392
3.040	0.080	0.026	0.003	-6.312
3.120	0.080	0.023	0.003	-6.232
3.200	0.080	0.028	0.004	-6.152
3.280	0.080	0.029	0.004	-6.072
3.360	0.080	0.022	0.004	-5.992
3.440	0.080	0.023	0.004	-5.912
3.520	0.080	0.024	0.004	-5.832
3.600	0.080	0.029	0.004	-5.752
3.680	0.080	0.033	0.004	-5.672
3.760	0.080	0.039	0.005	-5.592
3.840	0.080	0.027	0.004	-5.512
3.920	0.080	0.027	0.004	-5.432
4.000	0.080	0.026	0.004	-5.352
4.080	0.080	0.023	0.004	-5.272
4.160	0.080	0.025	0.004	-5.192
4.240	0.080	0.021	0.004	-5.112
4.320	0.080	0.022	0.004	-5.032
4.400	0.080	0.016	0.004	-4.952
4.480	0.080	0.021	0.003	-4.872
4.560	0.080	0.025	0.004	-4.792
4.640	0.080	0.017	0.003	-4.712
4.720	0.080	0.021	0.003	-4.632
4.800	0.080	0.019	0.003	-4.552
4.880	0.080	0.020	0.003	-4.472
4.960	0.080	0.018	0.003	-4.392
5.040	0.080	0.019	0.003	-4.312
5.120	0.080	0.021	0.004	-4.232
5.200	0.080	0.017	0.003	-4.152
5.280	0.080	0.020	0.003	-4.072
5.360	0.080	0.022	0.003	-3.992
5.440	0.080	0.014	0.003	-3.912
5.520	0.080	0.015	0.003	-3.832
5.600	0.080	0.015	0.003	-3.752
5.680	0.080	0.014	0.003	-3.672
5.760	0.080	0.013	0.003	-3.592
5.840	0.080	0.014	0.003	-3.512
5.920	0.080	0.010	0.003	-3.432
6.000	0.080	0.021	0.004	-3.352
6.080	0.080	0.014	0.004	-3.272
6.160	0.080	0.018	0.004	-3.192
6.240	0.080	0.016	0.003	-3.112
6.320	0.080	0.019	0.004	-3.032
6.400	0.080	0.019	0.004	-2.952
6.480	0.080	0.020	0.003	-2.872

Continued on next page

TABLE XLI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.014	0.003	-2.792
6.640	0.080	0.009	0.003	-2.712
6.720	0.080	0.013	0.003	-2.632
6.800	0.080	0.009	0.003	-2.552
6.880	0.080	0.008	0.003	-2.472
6.960	0.080	0.006	0.003	-2.392
7.040	0.080	0.013	0.003	-2.312
7.120	0.080	0.015	0.003	-2.232
7.200	0.080	0.014	0.003	-2.152
7.280	0.080	0.011	0.003	-2.072
7.360	0.080	0.009	0.003	-1.992
7.440	0.080	0.010	0.003	-1.912
7.520	0.080	0.018	0.004	-1.832
7.600	0.080	0.020	0.004	-1.752
7.680	0.080	0.009	0.003	-1.672
7.760	0.080	0.018	0.004	-1.592
7.840	0.080	0.006	0.003	-1.512
7.920	0.080	0.008	0.003	-1.432
8.000	0.080	0.008	0.003	-1.352
8.080	0.080	0.004	0.003	-1.272
8.160	0.080	0.010	0.003	-1.192
8.240	0.080	0.004	0.003	-1.112
8.320	0.080	0.010	0.003	-1.032
8.400	0.080	0.013	0.003	-0.952
8.480	0.080	0.014	0.003	-0.872
8.560	0.080	0.011	0.003	-0.792
8.640	0.080	0.019	0.004	-0.712
8.720	0.080	0.010	0.003	-0.632
8.800	0.080	0.016	0.004	-0.552
8.880	0.080	0.015	0.003	-0.472
8.960	0.080	0.015	0.003	-0.392
9.040	0.080	0.013	0.003	-0.312
9.120	0.080	0.014	0.003	-0.232
9.200	0.080	0.009	0.003	-0.152
9.280	0.080	0.010	0.003	-0.072
9.360	0.080	0.005	0.003	0.008
9.440	0.080	0.010	0.003	0.088
9.520	0.080	0.010	0.003	0.168
9.600	0.080	0.006	0.003	0.248
9.680	0.080	0.007	0.003	0.328
9.760	0.080	0.006	0.003	0.408
9.840	0.080	0.006	0.002	0.488
9.920	0.080	0.006	0.003	0.568
10.000	0.080	0.001	0.002	0.648
10.080	0.080	0.007	0.002	0.728
10.160	0.080	0.001	0.002	0.808
10.240	0.080	0.002	0.001	0.888
10.320	0.080	0.002	0.002	0.968
10.400	0.080	0.005	0.002	1.048
10.480	0.080	0.001	0.002	1.128
10.560	0.080	0.000	0.007	1.208
10.640	0.080	0.002	0.002	1.288
10.720	0.080	0.003	0.002	1.368
10.800	0.080	0.004	0.002	1.448
10.880	0.080	0.005	0.002	1.528
10.960	0.080	0.001	0.002	1.608
11.040	0.080	0.000	0.006	1.688
11.120	0.080	0.002	0.002	1.768
11.200	0.080	0.003	0.002	1.848
11.280	0.080	0.001	0.002	1.928
11.360	0.080	0.006	0.003	2.008

Continued on next page

TABLE XLI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.001	0.002	2.088
11.520	0.080	0.006	0.005	2.168
11.600	0.080	0.004	0.005	2.248
11.680	0.080	0.004	0.006	2.328
11.760	0.080	0.000	0.000	2.408
11.840	0.080	0.000	0.000	2.488
11.920	0.080	0.000	0.003	2.568
12.000	0.080	0.006	0.008	2.648
12.080	0.080	0.009	0.015	2.728
12.160	0.080	0.000	0.000	2.808
12.240	0.080	0.020	0.021	2.888
12.320	0.080	0.000	0.014	2.968
12.400	0.080	0.037	0.037	3.048
12.480	0.080	0.000	0.029	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

7. ^{88}Y γ-ray 373.570 keV

^{88}Y nucleus
γ-ray observed 373.570 keV
γ-ray originates in initial state at 766.400 keV and goes to final state at 392.860 keV
Initial state is (0)+ and final state is 1+ transition is type (M1)
Internal conversion coefficent α is 1.006

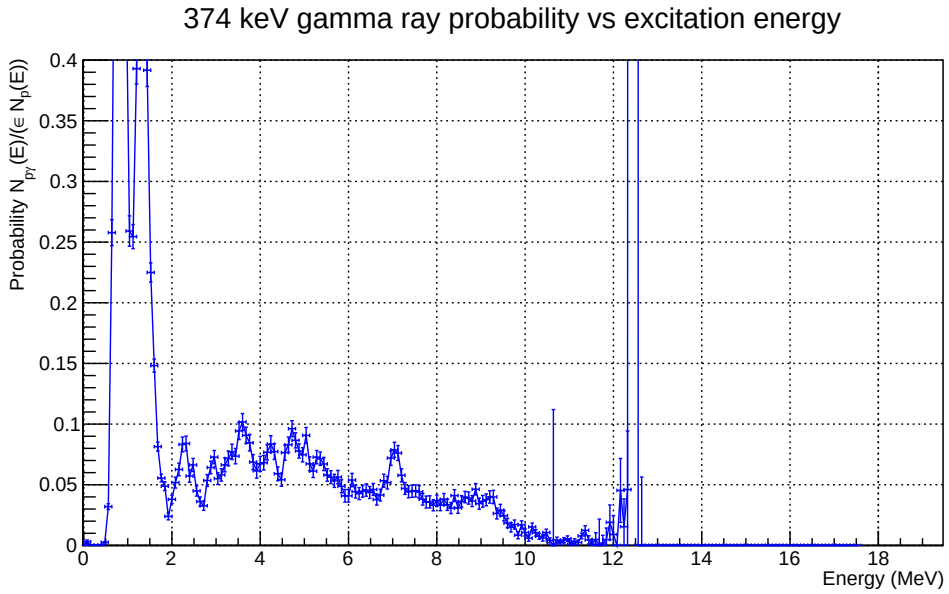

FIG. 60: Gamma ray probability distribution of the 373.570 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLII: ^{89}Y(p,d)^{88}Y probability versus energy for 373.570 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.003	0.001	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.003	0.000	-8.872
0.560	0.080	0.032	0.002	-8.792
0.640	0.080	0.258	0.011	-8.712
0.720	0.080	0.647	0.022	-8.632
0.800	0.080	0.839	0.028	-8.552
0.880	0.080	0.711	0.025	-8.472
0.960	0.080	0.476	0.020	-8.392
1.040	0.080	0.259	0.012	-8.312
1.120	0.080	0.255	0.010	-8.232
1.200	0.080	0.393	0.013	-8.152
1.280	0.080	0.533	0.017	-8.072
1.360	0.080	0.554	0.018	-7.992
1.440	0.080	0.392	0.013	-7.912
1.520	0.080	0.225	0.008	-7.832
1.600	0.080	0.148	0.005	-7.752

Continued on next page

TABLE XLII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.081	0.004	-7.672
1.760	0.080	0.056	0.003	-7.592
1.840	0.080	0.049	0.004	-7.512
1.920	0.080	0.024	0.003	-7.432
2.000	0.080	0.038	0.004	-7.352
2.080	0.080	0.052	0.004	-7.272
2.160	0.080	0.063	0.005	-7.192
2.240	0.080	0.083	0.006	-7.112
2.320	0.080	0.084	0.006	-7.032
2.400	0.080	0.057	0.005	-6.952
2.480	0.080	0.066	0.005	-6.872
2.560	0.080	0.045	0.004	-6.792
2.640	0.080	0.036	0.004	-6.712
2.720	0.080	0.033	0.004	-6.632
2.800	0.080	0.054	0.005	-6.552
2.880	0.080	0.064	0.005	-6.472
2.960	0.080	0.073	0.005	-6.392
3.040	0.080	0.055	0.005	-6.312
3.120	0.080	0.058	0.005	-6.232
3.200	0.080	0.066	0.006	-6.152
3.280	0.080	0.072	0.006	-6.072
3.360	0.080	0.077	0.006	-5.992
3.440	0.080	0.074	0.006	-5.912
3.520	0.080	0.094	0.007	-5.832
3.600	0.080	0.102	0.007	-5.752
3.680	0.080	0.091	0.007	-5.672
3.760	0.080	0.085	0.007	-5.592
3.840	0.080	0.069	0.006	-5.512
3.920	0.080	0.062	0.006	-5.432
4.000	0.080	0.067	0.006	-5.352
4.080	0.080	0.068	0.006	-5.272
4.160	0.080	0.077	0.006	-5.192
4.240	0.080	0.083	0.007	-5.112
4.320	0.080	0.077	0.007	-5.032
4.400	0.080	0.059	0.006	-4.952
4.480	0.080	0.054	0.005	-4.872
4.560	0.080	0.076	0.006	-4.792
4.640	0.080	0.083	0.006	-4.712
4.720	0.080	0.096	0.007	-4.632
4.800	0.080	0.087	0.006	-4.552
4.880	0.080	0.078	0.006	-4.472
4.960	0.080	0.075	0.006	-4.392
5.040	0.080	0.091	0.007	-4.312
5.120	0.080	0.067	0.006	-4.232
5.200	0.080	0.061	0.005	-4.152
5.280	0.080	0.073	0.005	-4.072
5.360	0.080	0.072	0.006	-3.992
5.440	0.080	0.067	0.005	-3.912
5.520	0.080	0.058	0.005	-3.832
5.600	0.080	0.056	0.005	-3.752
5.680	0.080	0.053	0.005	-3.672
5.760	0.080	0.056	0.005	-3.592
5.840	0.080	0.049	0.005	-3.512
5.920	0.080	0.041	0.005	-3.432
6.000	0.080	0.041	0.005	-3.352
6.080	0.080	0.054	0.005	-3.272
6.160	0.080	0.044	0.005	-3.192
6.240	0.080	0.043	0.005	-3.112
6.320	0.080	0.045	0.005	-3.032
6.400	0.080	0.046	0.005	-2.952
6.480	0.080	0.044	0.005	-2.872

Continued on next page

TABLE XLII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.046	0.005	-2.792
6.640	0.080	0.038	0.005	-2.712
6.720	0.080	0.041	0.005	-2.632
6.800	0.080	0.053	0.005	-2.552
6.880	0.080	0.052	0.005	-2.472
6.960	0.080	0.072	0.006	-2.392
7.040	0.080	0.079	0.006	-2.312
7.120	0.080	0.076	0.006	-2.232
7.200	0.080	0.058	0.005	-2.152
7.280	0.080	0.047	0.005	-2.072
7.360	0.080	0.044	0.005	-1.992
7.440	0.080	0.045	0.005	-1.912
7.520	0.080	0.045	0.005	-1.832
7.600	0.080	0.044	0.005	-1.752
7.680	0.080	0.038	0.005	-1.672
7.760	0.080	0.036	0.005	-1.592
7.840	0.080	0.036	0.005	-1.512
7.920	0.080	0.033	0.005	-1.432
8.000	0.080	0.037	0.005	-1.352
8.080	0.080	0.033	0.005	-1.272
8.160	0.080	0.038	0.005	-1.192
8.240	0.080	0.034	0.005	-1.112
8.320	0.080	0.031	0.005	-1.032
8.400	0.080	0.041	0.005	-0.952
8.480	0.080	0.031	0.004	-0.872
8.560	0.080	0.036	0.005	-0.792
8.640	0.080	0.040	0.005	-0.712
8.720	0.080	0.039	0.005	-0.632
8.800	0.080	0.037	0.005	-0.552
8.880	0.080	0.046	0.005	-0.472
8.960	0.080	0.034	0.005	-0.392
9.040	0.080	0.036	0.005	-0.312
9.120	0.080	0.038	0.005	-0.232
9.200	0.080	0.040	0.005	-0.152
9.280	0.080	0.040	0.005	-0.072
9.360	0.080	0.026	0.004	0.008
9.440	0.080	0.029	0.005	0.088
9.520	0.080	0.024	0.004	0.168
9.600	0.080	0.018	0.004	0.248
9.680	0.080	0.015	0.004	0.328
9.760	0.080	0.017	0.004	0.408
9.840	0.080	0.009	0.003	0.488
9.920	0.080	0.017	0.003	0.568
10.000	0.080	0.011	0.003	0.648
10.080	0.080	0.006	0.003	0.728
10.160	0.080	0.015	0.003	0.808
10.240	0.080	0.010	0.003	0.888
10.320	0.080	0.007	0.002	0.968
10.400	0.080	0.006	0.003	1.048
10.480	0.080	0.011	0.003	1.128
10.560	0.080	0.004	0.002	1.208
10.640	0.080	0.000	0.112	1.288
10.720	0.080	0.004	0.002	1.368
10.800	0.080	0.002	0.002	1.448
10.880	0.080	0.004	0.002	1.528
10.960	0.080	0.005	0.002	1.608
11.040	0.080	0.001	0.002	1.688
11.120	0.080	0.004	0.002	1.768
11.200	0.080	0.002	0.002	1.848
11.280	0.080	0.008	0.002	1.928
11.360	0.080	0.013	0.004	2.008

Continued on next page

TABLE XLII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.005	0.003	2.088
11.520	0.080	0.001	0.003	2.168
11.600	0.080	0.005	0.006	2.248
11.680	0.080	0.000	0.022	2.328
11.760	0.080	0.002	0.006	2.408
11.840	0.080	0.005	0.010	2.488
11.920	0.080	0.019	0.014	2.568
12.000	0.080	0.009	0.016	2.648
12.080	0.080	0.000	0.000	2.728
12.160	0.080	0.045	0.026	2.808
12.240	0.080	0.015	0.023	2.888
12.320	0.080	0.046	0.048	2.968
12.400	0.080	14.264	21.946	3.048
12.480	0.080	1373570.625	11100211.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.000	0.056	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

8. ^{88}Y γ-ray 508.850 keV

^{88}Y nucleus
γ-ray observed 508.850 keV
γ-ray originates in initial state at 1275.300 keV and goes to final state at 766.400 keV
Initial state is (1,2)+ and final state is (0)+ transition is type (M1+E2)
Internal conversion coefficent α is 1.003

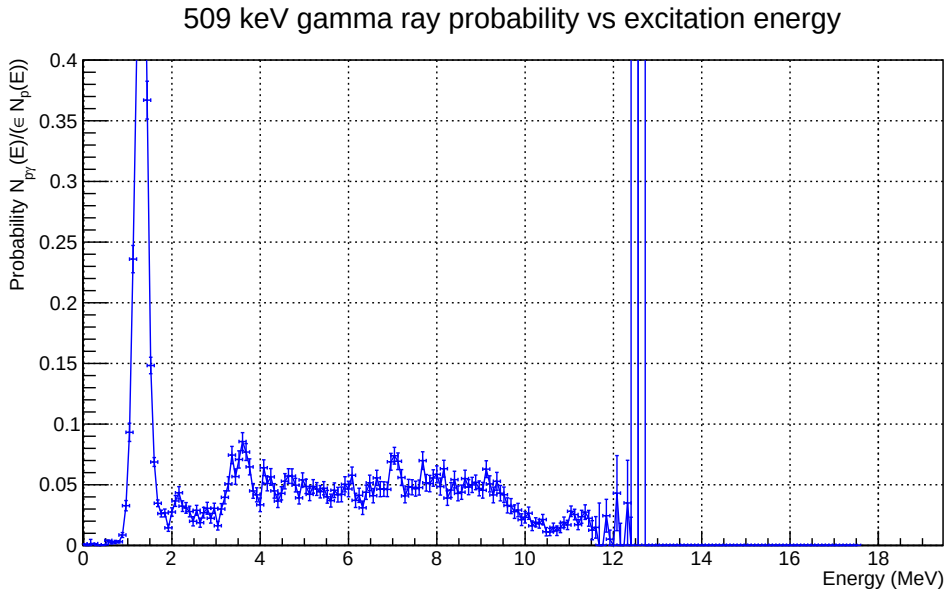

FIG. 61: Gamma ray probability distribution of the 508.850 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLIII: ^{89}Y(p,d)^{88}Y probability versus energy for 508.850 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.001	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.001	0.004	-9.192
0.240	0.080	0.002	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.001	0.000	-8.872
0.560	0.080	0.004	0.000	-8.792
0.640	0.080	0.002	0.001	-8.712
0.720	0.080	0.003	0.001	-8.632
0.800	0.080	0.003	0.001	-8.552
0.880	0.080	0.009	0.002	-8.472
0.960	0.080	0.033	0.004	-8.392
1.040	0.080	0.093	0.008	-8.312
1.120	0.080	0.236	0.011	-8.232
1.200	0.080	0.400	0.016	-8.152
1.280	0.080	0.554	0.022	-8.072
1.360	0.080	0.582	0.023	-7.992
1.440	0.080	0.367	0.016	-7.912
1.520	0.080	0.148	0.007	-7.832
1.600	0.080	0.069	0.004	-7.752

Continued on next page

TABLE XLIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.035	0.003	-7.672
1.760	0.080	0.026	0.003	-7.592
1.840	0.080	0.027	0.003	-7.512
1.920	0.080	0.014	0.003	-7.432
2.000	0.080	0.027	0.003	-7.352
2.080	0.080	0.037	0.004	-7.272
2.160	0.080	0.043	0.005	-7.192
2.240	0.080	0.032	0.004	-7.112
2.320	0.080	0.031	0.004	-7.032
2.400	0.080	0.028	0.004	-6.952
2.480	0.080	0.020	0.004	-6.872
2.560	0.080	0.029	0.004	-6.792
2.640	0.080	0.019	0.004	-6.712
2.720	0.080	0.027	0.004	-6.632
2.800	0.080	0.031	0.005	-6.552
2.880	0.080	0.022	0.004	-6.472
2.960	0.080	0.031	0.004	-6.392
3.040	0.080	0.016	0.004	-6.312
3.120	0.080	0.030	0.004	-6.232
3.200	0.080	0.040	0.005	-6.152
3.280	0.080	0.051	0.006	-6.072
3.360	0.080	0.075	0.007	-5.992
3.440	0.080	0.057	0.006	-5.912
3.520	0.080	0.071	0.007	-5.832
3.600	0.080	0.086	0.007	-5.752
3.680	0.080	0.077	0.007	-5.672
3.760	0.080	0.065	0.007	-5.592
3.840	0.080	0.045	0.006	-5.512
3.920	0.080	0.042	0.006	-5.432
4.000	0.080	0.034	0.006	-5.352
4.080	0.080	0.064	0.007	-5.272
4.160	0.080	0.051	0.006	-5.192
4.240	0.080	0.056	0.007	-5.112
4.320	0.080	0.045	0.006	-5.032
4.400	0.080	0.037	0.005	-4.952
4.480	0.080	0.043	0.005	-4.872
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4.960	0.080	0.054	0.006	-4.392
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5.120	0.080	0.042	0.005	-4.232
5.200	0.080	0.049	0.006	-4.152
5.280	0.080	0.047	0.005	-4.072
5.360	0.080	0.044	0.005	-3.992
5.440	0.080	0.047	0.005	-3.912
5.520	0.080	0.040	0.005	-3.832
5.600	0.080	0.037	0.005	-3.752
5.680	0.080	0.045	0.006	-3.672
5.760	0.080	0.042	0.006	-3.592
5.840	0.080	0.042	0.006	-3.512
5.920	0.080	0.050	0.006	-3.432
6.000	0.080	0.047	0.006	-3.352
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6.240	0.080	0.041	0.006	-3.112
6.320	0.080	0.031	0.006	-3.032
6.400	0.080	0.044	0.006	-2.952
6.480	0.080	0.052	0.006	-2.872

Continued on next page

TABLE XLIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.041	0.006	-2.792
6.640	0.080	0.056	0.006	-2.712
6.720	0.080	0.046	0.006	-2.632
6.800	0.080	0.046	0.006	-2.552
6.880	0.080	0.046	0.006	-2.472
6.960	0.080	0.069	0.007	-2.392
7.040	0.080	0.074	0.007	-2.312
7.120	0.080	0.069	0.007	-2.232
7.200	0.080	0.056	0.007	-2.152
7.280	0.080	0.041	0.006	-2.072
7.360	0.080	0.048	0.006	-1.992
7.440	0.080	0.048	0.006	-1.912
7.520	0.080	0.047	0.006	-1.832
7.600	0.080	0.048	0.006	-1.752
7.680	0.080	0.070	0.007	-1.672
7.760	0.080	0.052	0.007	-1.592
7.840	0.080	0.051	0.007	-1.512
7.920	0.080	0.056	0.007	-1.432
8.000	0.080	0.059	0.007	-1.352
8.080	0.080	0.049	0.007	-1.272
8.160	0.080	0.063	0.007	-1.192
8.240	0.080	0.039	0.006	-1.112
8.320	0.080	0.046	0.006	-1.032
8.400	0.080	0.054	0.007	-0.952
8.480	0.080	0.043	0.006	-0.872
8.560	0.080	0.044	0.006	-0.792
8.640	0.080	0.055	0.007	-0.712
8.720	0.080	0.048	0.006	-0.632
8.800	0.080	0.050	0.006	-0.552
8.880	0.080	0.052	0.006	-0.472
8.960	0.080	0.047	0.006	-0.392
9.040	0.080	0.045	0.006	-0.312
9.120	0.080	0.063	0.007	-0.232
9.200	0.080	0.051	0.007	-0.152
9.280	0.080	0.042	0.006	-0.072
9.360	0.080	0.053	0.007	0.008
9.440	0.080	0.043	0.006	0.088
9.520	0.080	0.042	0.006	0.168
9.600	0.080	0.033	0.006	0.248
9.680	0.080	0.032	0.006	0.328
9.760	0.080	0.028	0.006	0.408
9.840	0.080	0.029	0.006	0.488
9.920	0.080	0.021	0.005	0.568
10.000	0.080	0.023	0.005	0.648
10.080	0.080	0.026	0.005	0.728
10.160	0.080	0.016	0.004	0.808
10.240	0.080	0.019	0.004	0.888
10.320	0.080	0.018	0.004	0.968
10.400	0.080	0.021	0.004	1.048
10.480	0.080	0.011	0.003	1.128
10.560	0.080	0.011	0.003	1.208
10.640	0.080	0.015	0.003	1.288
10.720	0.080	0.012	0.004	1.368
10.800	0.080	0.014	0.004	1.448
10.880	0.080	0.019	0.004	1.528
10.960	0.080	0.017	0.004	1.608
11.040	0.080	0.028	0.004	1.688
11.120	0.080	0.025	0.004	1.768
11.200	0.080	0.017	0.004	1.848
11.280	0.080	0.024	0.005	1.928
11.360	0.080	0.027	0.006	2.008

Continued on next page

TABLE XLIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.022	0.007	2.088
11.520	0.080	0.013	0.008	2.168
11.600	0.080	0.015	0.009	2.248
11.680	0.080	0.000	0.035	2.328
11.760	0.080	0.000	0.000	2.408
11.840	0.080	0.024	0.014	2.488
11.920	0.080	0.005	0.007	2.568
12.000	0.080	0.000	0.000	2.648
12.080	0.080	0.043	0.031	2.728
12.160	0.080	0.000	0.018	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.035	0.035	2.968
12.400	0.080	0.000	0.023	3.048
12.480	0.080	1838618.625	22247570.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	3695044.750	44710612.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

9. ^{88}Y γ-ray 717.850 keV

^{88}Y nucleus
γ-ray observed 717.850 keV
γ-ray originates in initial state at 1702.390 keV and goes to final state at 984.660 keV
Initial state is (3,4)+ and final state is (4)+ transition is type (M1)
Internal conversion coefficent α is 1.001

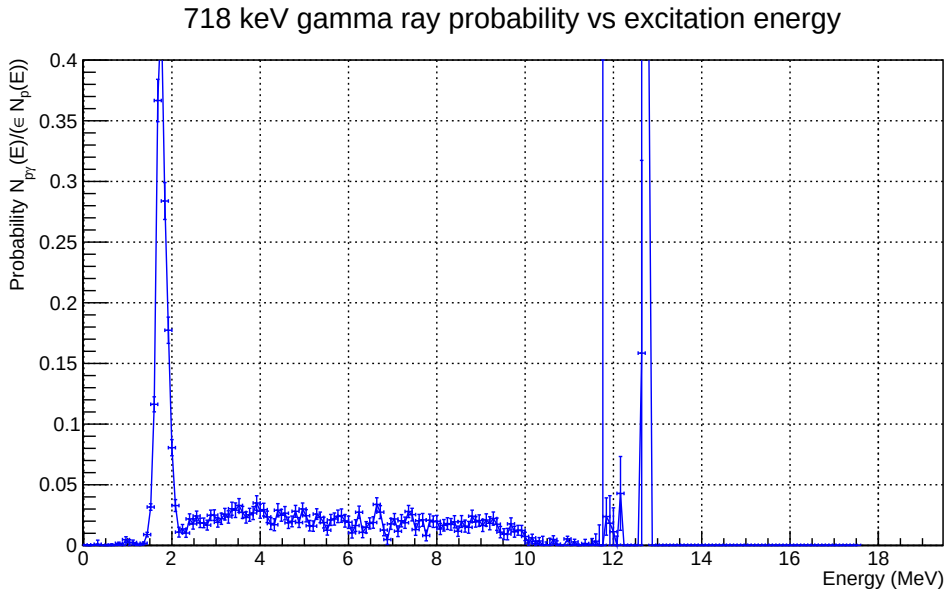

FIG. 62: Gamma ray probability distribution of the 717.850 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLIV: ^{89}Y(p,d)^{88}Y probability versus energy for 717.850 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.001	0.000	-9.112
0.320	0.080	0.001	0.003	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.001	-8.792
0.640	0.080	0.000	0.001	-8.712
0.720	0.080	0.000	0.000	-8.632
0.800	0.080	0.002	0.001	-8.552
0.880	0.080	0.000	0.000	-8.472
0.960	0.080	0.005	0.002	-8.392
1.040	0.080	0.002	0.002	-8.312
1.120	0.080	0.002	0.002	-8.232
1.200	0.080	0.001	0.001	-8.152
1.280	0.080	0.000	0.001	-8.072
1.360	0.080	0.002	0.001	-7.992
1.440	0.080	0.009	0.002	-7.912
1.520	0.080	0.032	0.003	-7.832
1.600	0.080	0.116	0.006	-7.752

Continued on next page

TABLE XLIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.367	0.017	-7.672
1.760	0.080	0.440	0.021	-7.592
1.840	0.080	0.284	0.015	-7.512
1.920	0.080	0.177	0.011	-7.432
2.000	0.080	0.081	0.007	-7.352
2.080	0.080	0.033	0.005	-7.272
2.160	0.080	0.011	0.004	-7.192
2.240	0.080	0.014	0.004	-7.112
2.320	0.080	0.010	0.004	-7.032
2.400	0.080	0.022	0.004	-6.952
2.480	0.080	0.018	0.004	-6.872
2.560	0.080	0.024	0.004	-6.792
2.640	0.080	0.019	0.004	-6.712
2.720	0.080	0.019	0.004	-6.632
2.800	0.080	0.017	0.004	-6.552
2.880	0.080	0.025	0.004	-6.472
2.960	0.080	0.025	0.004	-6.392
3.040	0.080	0.019	0.004	-6.312
3.120	0.080	0.022	0.005	-6.232
3.200	0.080	0.026	0.005	-6.152
3.280	0.080	0.023	0.005	-6.072
3.360	0.080	0.030	0.005	-5.992
3.440	0.080	0.029	0.006	-5.912
3.520	0.080	0.033	0.006	-5.832
3.600	0.080	0.027	0.005	-5.752
3.680	0.080	0.023	0.005	-5.672
3.760	0.080	0.025	0.005	-5.592
3.840	0.080	0.027	0.005	-5.512
3.920	0.080	0.035	0.006	-5.432
4.000	0.080	0.028	0.006	-5.352
4.080	0.080	0.030	0.005	-5.272
4.160	0.080	0.023	0.005	-5.192
4.240	0.080	0.018	0.005	-5.112
4.320	0.080	0.017	0.005	-5.032
4.400	0.080	0.029	0.005	-4.952
4.480	0.080	0.025	0.005	-4.872
4.560	0.080	0.026	0.006	-4.792
4.640	0.080	0.019	0.005	-4.712
4.720	0.080	0.020	0.004	-4.632
4.800	0.080	0.028	0.005	-4.552
4.880	0.080	0.019	0.004	-4.472
4.960	0.080	0.030	0.005	-4.392
5.040	0.080	0.024	0.005	-4.312
5.120	0.080	0.016	0.004	-4.232
5.200	0.080	0.016	0.004	-4.152
5.280	0.080	0.026	0.004	-4.072
5.360	0.080	0.023	0.004	-3.992
5.440	0.080	0.019	0.004	-3.912
5.520	0.080	0.013	0.004	-3.832
5.600	0.080	0.021	0.005	-3.752
5.680	0.080	0.022	0.005	-3.672
5.760	0.080	0.024	0.005	-3.592
5.840	0.080	0.025	0.006	-3.512
5.920	0.080	0.020	0.005	-3.432
6.000	0.080	0.019	0.005	-3.352
6.080	0.080	0.010	0.004	-3.272
6.160	0.080	0.016	0.005	-3.192
6.240	0.080	0.027	0.005	-3.112
6.320	0.080	0.011	0.004	-3.032
6.400	0.080	0.015	0.005	-2.952
6.480	0.080	0.018	0.005	-2.872

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TABLE XLIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.019	0.005	-2.792
6.640	0.080	0.034	0.005	-2.712
6.720	0.080	0.027	0.005	-2.632
6.800	0.080	0.013	0.005	-2.552
6.880	0.080	0.005	0.004	-2.472
6.960	0.080	0.018	0.005	-2.392
7.040	0.080	0.022	0.004	-2.312
7.120	0.080	0.012	0.004	-2.232
7.200	0.080	0.020	0.005	-2.152
7.280	0.080	0.019	0.005	-2.072
7.360	0.080	0.028	0.005	-1.992
7.440	0.080	0.025	0.005	-1.912
7.520	0.080	0.013	0.005	-1.832
7.600	0.080	0.020	0.005	-1.752
7.680	0.080	0.021	0.005	-1.672
7.760	0.080	0.008	0.004	-1.592
7.840	0.080	0.021	0.005	-1.512
7.920	0.080	0.020	0.005	-1.432
8.000	0.080	0.020	0.005	-1.352
8.080	0.080	0.014	0.005	-1.272
8.160	0.080	0.017	0.005	-1.192
8.240	0.080	0.018	0.005	-1.112
8.320	0.080	0.017	0.005	-1.032
8.400	0.080	0.020	0.005	-0.952
8.480	0.080	0.012	0.004	-0.872
8.560	0.080	0.020	0.005	-0.792
8.640	0.080	0.016	0.005	-0.712
8.720	0.080	0.015	0.005	-0.632
8.800	0.080	0.024	0.005	-0.552
8.880	0.080	0.019	0.004	-0.472
8.960	0.080	0.021	0.005	-0.392
9.040	0.080	0.016	0.005	-0.312
9.120	0.080	0.021	0.005	-0.232
9.200	0.080	0.018	0.005	-0.152
9.280	0.080	0.022	0.005	-0.072
9.360	0.080	0.018	0.005	0.008
9.440	0.080	0.011	0.005	0.088
9.520	0.080	0.009	0.004	0.168
9.600	0.080	0.009	0.005	0.248
9.680	0.080	0.018	0.005	0.328
9.760	0.080	0.011	0.004	0.408
9.840	0.080	0.013	0.004	0.488
9.920	0.080	0.012	0.004	0.568
10.000	0.080	0.007	0.003	0.648
10.080	0.080	0.002	0.003	0.728
10.160	0.080	0.006	0.003	0.808
10.240	0.080	0.001	0.002	0.888
10.320	0.080	0.004	0.003	0.968
10.400	0.080	0.000	0.007	1.048
10.480	0.080	0.001	0.002	1.128
10.560	0.080	0.000	0.006	1.208
10.640	0.080	0.005	0.003	1.288
10.720	0.080	0.001	0.003	1.368
10.800	0.080	0.000	0.000	1.448
10.880	0.080	0.000	0.000	1.528
10.960	0.080	0.005	0.002	1.608
11.040	0.080	0.000	0.000	1.688
11.120	0.080	0.003	0.002	1.768
11.200	0.080	0.000	0.001	1.848
11.280	0.080	0.000	0.000	1.928
11.360	0.080	0.002	0.003	2.008

Continued on next page

TABLE XLIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.000	2.088
11.520	0.080	0.001	0.005	2.168
11.600	0.080	0.004	0.006	2.248
11.680	0.080	0.000	0.017	2.328
11.760	0.080	0.000	0.479	2.408
11.840	0.080	0.024	0.015	2.488
11.920	0.080	0.018	0.023	2.568
12.000	0.080	0.011	0.020	2.648
12.080	0.080	0.000	0.008	2.728
12.160	0.080	0.043	0.030	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.159	0.159	3.288
12.720	0.080	5434495.500	77408784.000	3.368
12.800	0.080	0.428	0.429	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

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TABLE XLIV – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

10. ^{88}Y γ-ray 828.300 keV

^{88}Y nucleus
γ-ray observed 828.300 keV
γ-ray originates in initial state at 1220.830 keV and goes to final state at 392.860 keV
Initial state is (0,1)+ and final state is 1+ transition is type (M1)
Internal conversion coefficent α is 1.001

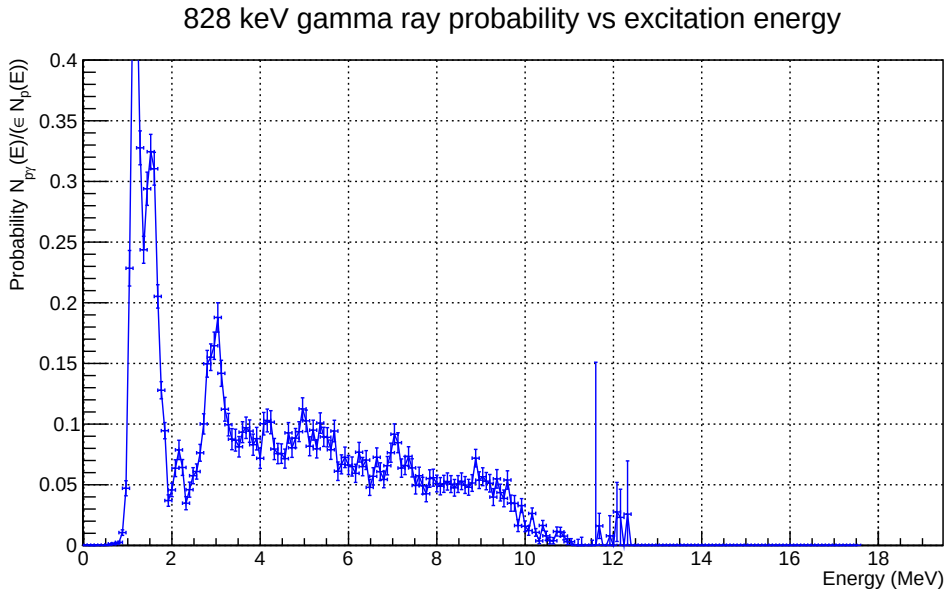

FIG. 63: Gamma ray probability distribution of the 828.300 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLV: ^{89}Y(p,d)^{88}Y probability versus energy for 828.300 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.001	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.001	-8.792
0.640	0.080	0.001	0.001	-8.712
0.720	0.080	0.002	0.001	-8.632
0.800	0.080	0.002	0.001	-8.552
0.880	0.080	0.011	0.002	-8.472
0.960	0.080	0.047	0.006	-8.392
1.040	0.080	0.228	0.015	-8.312
1.120	0.080	0.472	0.022	-8.232
1.200	0.080	0.478	0.020	-8.152
1.280	0.080	0.328	0.014	-8.072
1.360	0.080	0.244	0.011	-7.992
1.440	0.080	0.294	0.014	-7.912
1.520	0.080	0.324	0.014	-7.832
1.600	0.080	0.310	0.014	-7.752

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TABLE XLV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.205	0.010	-7.672
1.760	0.080	0.128	0.007	-7.592
1.840	0.080	0.095	0.007	-7.512
1.920	0.080	0.037	0.005	-7.432
2.000	0.080	0.046	0.006	-7.352
2.080	0.080	0.064	0.007	-7.272
2.160	0.080	0.079	0.008	-7.192
2.240	0.080	0.064	0.007	-7.112
2.320	0.080	0.035	0.005	-7.032
2.400	0.080	0.046	0.006	-6.952
2.480	0.080	0.058	0.007	-6.872
2.560	0.080	0.061	0.006	-6.792
2.640	0.080	0.076	0.007	-6.712
2.720	0.080	0.100	0.008	-6.632
2.800	0.080	0.150	0.011	-6.552
2.880	0.080	0.155	0.011	-6.472
2.960	0.080	0.165	0.011	-6.392
3.040	0.080	0.188	0.012	-6.312
3.120	0.080	0.142	0.011	-6.232
3.200	0.080	0.112	0.010	-6.152
3.280	0.080	0.100	0.009	-6.072
3.360	0.080	0.088	0.009	-5.992
3.440	0.080	0.087	0.009	-5.912
3.520	0.080	0.081	0.008	-5.832
3.600	0.080	0.093	0.009	-5.752
3.680	0.080	0.097	0.009	-5.672
3.760	0.080	0.094	0.009	-5.592
3.840	0.080	0.083	0.009	-5.512
3.920	0.080	0.088	0.009	-5.432
4.000	0.080	0.072	0.008	-5.352
4.080	0.080	0.100	0.009	-5.272
4.160	0.080	0.103	0.009	-5.192
4.240	0.080	0.101	0.010	-5.112
4.320	0.080	0.079	0.009	-5.032
4.400	0.080	0.076	0.008	-4.952
4.480	0.080	0.076	0.008	-4.872
4.560	0.080	0.072	0.008	-4.792
4.640	0.080	0.093	0.008	-4.712
4.720	0.080	0.080	0.008	-4.632
4.800	0.080	0.088	0.008	-4.552
4.880	0.080	0.094	0.008	-4.472
4.960	0.080	0.112	0.009	-4.392
5.040	0.080	0.103	0.009	-4.312
5.120	0.080	0.082	0.008	-4.232
5.200	0.080	0.095	0.008	-4.152
5.280	0.080	0.080	0.007	-4.072
5.360	0.080	0.101	0.008	-3.992
5.440	0.080	0.090	0.008	-3.912
5.520	0.080	0.089	0.008	-3.832
5.600	0.080	0.079	0.008	-3.752
5.680	0.080	0.094	0.009	-3.672
5.760	0.080	0.061	0.008	-3.592
5.840	0.080	0.067	0.008	-3.512
5.920	0.080	0.073	0.008	-3.432
6.000	0.080	0.066	0.008	-3.352
6.080	0.080	0.065	0.008	-3.272
6.160	0.080	0.059	0.007	-3.192
6.240	0.080	0.077	0.008	-3.112
6.320	0.080	0.065	0.008	-3.032
6.400	0.080	0.070	0.008	-2.952
6.480	0.080	0.048	0.007	-2.872

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TABLE XLV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.057	0.007	-2.792
6.640	0.080	0.073	0.008	-2.712
6.720	0.080	0.061	0.007	-2.632
6.800	0.080	0.054	0.007	-2.552
6.880	0.080	0.066	0.008	-2.472
6.960	0.080	0.076	0.008	-2.392
7.040	0.080	0.092	0.009	-2.312
7.120	0.080	0.085	0.008	-2.232
7.200	0.080	0.064	0.008	-2.152
7.280	0.080	0.066	0.007	-2.072
7.360	0.080	0.073	0.008	-1.992
7.440	0.080	0.064	0.007	-1.912
7.520	0.080	0.049	0.007	-1.832
7.600	0.080	0.058	0.007	-1.752
7.680	0.080	0.049	0.007	-1.672
7.760	0.080	0.043	0.007	-1.592
7.840	0.080	0.055	0.007	-1.512
7.920	0.080	0.056	0.007	-1.432
8.000	0.080	0.051	0.007	-1.352
8.080	0.080	0.049	0.007	-1.272
8.160	0.080	0.051	0.007	-1.192
8.240	0.080	0.053	0.007	-1.112
8.320	0.080	0.051	0.007	-1.032
8.400	0.080	0.047	0.007	-0.952
8.480	0.080	0.051	0.007	-0.872
8.560	0.080	0.053	0.007	-0.792
8.640	0.080	0.050	0.007	-0.712
8.720	0.080	0.048	0.007	-0.632
8.800	0.080	0.052	0.007	-0.552
8.880	0.080	0.072	0.007	-0.472
8.960	0.080	0.054	0.007	-0.392
9.040	0.080	0.057	0.007	-0.312
9.120	0.080	0.053	0.007	-0.232
9.200	0.080	0.051	0.007	-0.152
9.280	0.080	0.040	0.007	-0.072
9.360	0.080	0.055	0.008	0.008
9.440	0.080	0.044	0.007	0.088
9.520	0.080	0.039	0.007	0.168
9.600	0.080	0.054	0.008	0.248
9.680	0.080	0.035	0.007	0.328
9.760	0.080	0.035	0.006	0.408
9.840	0.080	0.016	0.005	0.488
9.920	0.080	0.033	0.006	0.568
10.000	0.080	0.016	0.004	0.648
10.080	0.080	0.012	0.004	0.728
10.160	0.080	0.026	0.005	0.808
10.240	0.080	0.011	0.003	0.888
10.320	0.080	0.004	0.002	0.968
10.400	0.080	0.016	0.004	1.048
10.480	0.080	0.008	0.004	1.128
10.560	0.080	0.004	0.003	1.208
10.640	0.080	0.004	0.003	1.288
10.720	0.080	0.012	0.004	1.368
10.800	0.080	0.011	0.004	1.448
10.880	0.080	0.008	0.003	1.528
10.960	0.080	0.003	0.002	1.608
11.040	0.080	0.003	0.002	1.688
11.120	0.080	0.000	0.000	1.768
11.200	0.080	0.000	0.005	1.848
11.280	0.080	0.000	0.007	1.928
11.360	0.080	0.000	0.000	2.008

Continued on next page

TABLE XLV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.000	2.088
11.520	0.080	0.000	0.004	2.168
11.600	0.080	0.000	0.151	2.248
11.680	0.080	0.016	0.010	2.328
11.760	0.080	0.000	0.000	2.408
11.840	0.080	0.000	0.000	2.488
11.920	0.080	0.008	0.017	2.568
12.000	0.080	0.000	0.008	2.648
12.080	0.080	0.028	0.024	2.728
12.160	0.080	0.023	0.023	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.026	0.044	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLV – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

11. ^{88}Y γ-ray 896.700 keV

^{88}Y nucleus
γ-ray observed 896.700 keV
γ-ray originates in initial state at 1128.600 keV and goes to final state at 231.927 keV
Initial state is (3,4,5)- and final state is 5- transition is type (M1,E2,M3)
Internal conversion coefficent α is 1.001

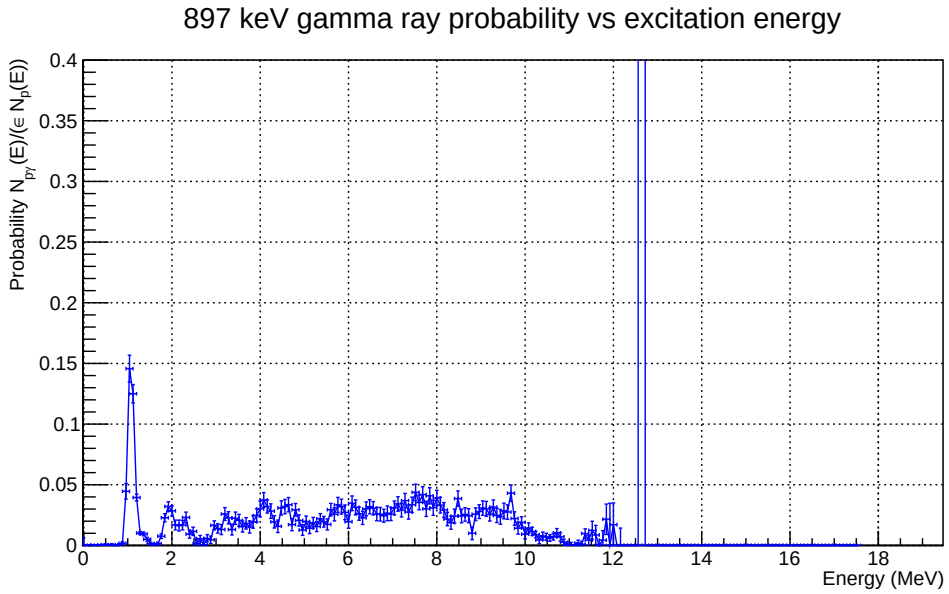

FIG. 64: Gamma ray probability distribution of the 896.700 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLVI: ^{89}Y(p,d)^{88}Y probability versus energy for 896.700 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	(%)	(%)	**(MeV)**
0.000	0.080	0.000	0.007	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.001	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.001	-8.712
0.720	0.080	0.000	0.001	-8.632
0.800	0.080	0.001	0.001	-8.552
0.880	0.080	0.002	0.001	-8.472
0.960	0.080	0.045	0.006	-8.392
1.040	0.080	0.146	0.011	-8.312
1.120	0.080	0.125	0.008	-8.232
1.200	0.080	0.040	0.003	-8.152
1.280	0.080	0.010	0.001	-8.072
1.360	0.080	0.009	0.002	-7.992
1.440	0.080	0.005	0.002	-7.912
1.520	0.080	0.002	0.001	-7.832
1.600	0.080	0.000	0.001	-7.752

Continued on next page

TABLE XLVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.002	0.001	-7.672
1.760	0.080	0.008	0.002	-7.592
1.840	0.080	0.023	0.003	-7.512
1.920	0.080	0.032	0.004	-7.432
2.000	0.080	0.029	0.004	-7.352
2.080	0.080	0.017	0.004	-7.272
2.160	0.080	0.016	0.004	-7.192
2.240	0.080	0.017	0.004	-7.112
2.320	0.080	0.023	0.004	-7.032
2.400	0.080	0.009	0.003	-6.952
2.480	0.080	0.012	0.003	-6.872
2.560	0.080	0.002	0.003	-6.792
2.640	0.080	0.006	0.003	-6.712
2.720	0.080	0.001	0.004	-6.632
2.800	0.080	0.006	0.003	-6.552
2.880	0.080	0.005	0.003	-6.472
2.960	0.080	0.017	0.004	-6.392
3.040	0.080	0.014	0.004	-6.312
3.120	0.080	0.013	0.004	-6.232
3.200	0.080	0.026	0.005	-6.152
3.280	0.080	0.023	0.005	-6.072
3.360	0.080	0.013	0.004	-5.992
3.440	0.080	0.022	0.005	-5.912
3.520	0.080	0.021	0.005	-5.832
3.600	0.080	0.015	0.004	-5.752
3.680	0.080	0.018	0.005	-5.672
3.760	0.080	0.015	0.005	-5.592
3.840	0.080	0.019	0.005	-5.512
3.920	0.080	0.025	0.006	-5.432
4.000	0.080	0.030	0.007	-5.352
4.080	0.080	0.038	0.006	-5.272
4.160	0.080	0.032	0.005	-5.192
4.240	0.080	0.028	0.006	-5.112
4.320	0.080	0.019	0.005	-5.032
4.400	0.080	0.016	0.005	-4.952
4.480	0.080	0.031	0.006	-4.872
4.560	0.080	0.032	0.006	-4.792
4.640	0.080	0.034	0.006	-4.712
4.720	0.080	0.017	0.005	-4.632
4.800	0.080	0.029	0.005	-4.552
4.880	0.080	0.021	0.005	-4.472
4.960	0.080	0.013	0.004	-4.392
5.040	0.080	0.020	0.004	-4.312
5.120	0.080	0.014	0.004	-4.232
5.200	0.080	0.019	0.004	-4.152
5.280	0.080	0.016	0.004	-4.072
5.360	0.080	0.022	0.004	-3.992
5.440	0.080	0.020	0.004	-3.912
5.520	0.080	0.017	0.005	-3.832
5.600	0.080	0.030	0.005	-3.752
5.680	0.080	0.026	0.005	-3.672
5.760	0.080	0.033	0.006	-3.592
5.840	0.080	0.032	0.006	-3.512
5.920	0.080	0.027	0.006	-3.432
6.000	0.080	0.020	0.005	-3.352
6.080	0.080	0.035	0.006	-3.272
6.160	0.080	0.031	0.006	-3.192
6.240	0.080	0.026	0.005	-3.112
6.320	0.080	0.023	0.005	-3.032
6.400	0.080	0.030	0.006	-2.952
6.480	0.080	0.032	0.006	-2.872

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TABLE XLVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.031	0.005	-2.792
6.640	0.080	0.026	0.006	-2.712
6.720	0.080	0.026	0.006	-2.632
6.800	0.080	0.024	0.005	-2.552
6.880	0.080	0.026	0.006	-2.472
6.960	0.080	0.026	0.005	-2.392
7.040	0.080	0.031	0.006	-2.312
7.120	0.080	0.034	0.006	-2.232
7.200	0.080	0.029	0.006	-2.152
7.280	0.080	0.037	0.006	-2.072
7.360	0.080	0.027	0.006	-1.992
7.440	0.080	0.034	0.006	-1.912
7.520	0.080	0.044	0.007	-1.832
7.600	0.080	0.035	0.006	-1.752
7.680	0.080	0.042	0.006	-1.672
7.760	0.080	0.030	0.006	-1.592
7.840	0.080	0.041	0.007	-1.512
7.920	0.080	0.031	0.006	-1.432
8.000	0.080	0.039	0.006	-1.352
8.080	0.080	0.033	0.006	-1.272
8.160	0.080	0.029	0.006	-1.192
8.240	0.080	0.022	0.005	-1.112
8.320	0.080	0.019	0.005	-1.032
8.400	0.080	0.024	0.006	-0.952
8.480	0.080	0.039	0.006	-0.872
8.560	0.080	0.024	0.006	-0.792
8.640	0.080	0.025	0.005	-0.712
8.720	0.080	0.024	0.006	-0.632
8.800	0.080	0.010	0.005	-0.552
8.880	0.080	0.026	0.005	-0.472
8.960	0.080	0.028	0.006	-0.392
9.040	0.080	0.031	0.006	-0.312
9.120	0.080	0.030	0.006	-0.232
9.200	0.080	0.025	0.005	-0.152
9.280	0.080	0.032	0.006	-0.072
9.360	0.080	0.025	0.006	0.008
9.440	0.080	0.024	0.006	0.088
9.520	0.080	0.028	0.006	0.168
9.600	0.080	0.027	0.006	0.248
9.680	0.080	0.043	0.007	0.328
9.760	0.080	0.022	0.006	0.408
9.840	0.080	0.014	0.005	0.488
9.920	0.080	0.019	0.005	0.568
10.000	0.080	0.009	0.004	0.648
10.080	0.080	0.014	0.004	0.728
10.160	0.080	0.012	0.003	0.808
10.240	0.080	0.009	0.003	0.888
10.320	0.080	0.004	0.003	0.968
10.400	0.080	0.008	0.003	1.048
10.480	0.080	0.007	0.003	1.128
10.560	0.080	0.006	0.003	1.208
10.640	0.080	0.007	0.003	1.288
10.720	0.080	0.010	0.004	1.368
10.800	0.080	0.007	0.004	1.448
10.880	0.080	0.003	0.002	1.528
10.960	0.080	0.001	0.002	1.608
11.040	0.080	0.001	0.002	1.688
11.120	0.080	0.000	0.000	1.768
11.200	0.080	0.002	0.002	1.848
11.280	0.080	0.001	0.002	1.928
11.360	0.080	0.010	0.004	2.008

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TABLE XLVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.004	0.004	2.088
11.520	0.080	0.012	0.008	2.168
11.600	0.080	0.009	0.008	2.248
11.680	0.080	0.000	0.002	2.328
11.760	0.080	0.004	0.008	2.408
11.840	0.080	0.022	0.012	2.488
11.920	0.080	0.000	0.035	2.568
12.000	0.080	0.017	0.018	2.648
12.080	0.080	0.000	0.000	2.728
12.160	0.080	0.000	0.014	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	5242114.000	79806008.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLVI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

12. ^{88}Y γ-ray 984.600 keV

^{88}Y nucleus
γ-ray observed 984.600 keV
γ-ray originates in initial state at 984.600 keV and goes to final state at 0.000 keV
Initial state is (4)+ and final state is 4- transition is type (E1)
Internal conversion coefficent α is 1.000

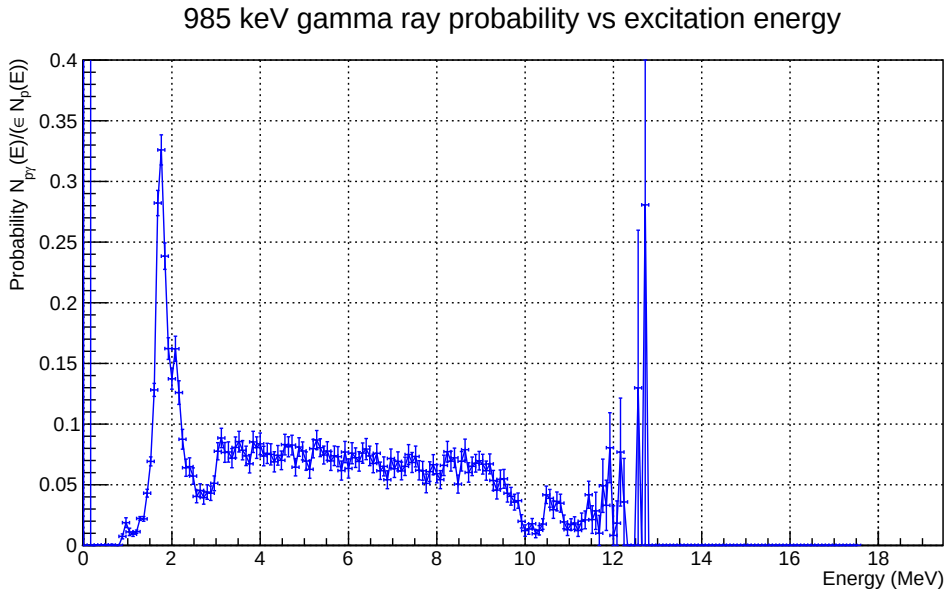

FIG. 65: Gamma ray probability distribution of the 984.600 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLVII: ^{89}Y(p,d)^{88}Y probability versus energy for 984.600 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	1071.300	11665.009	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.001	-8.712
0.720	0.080	0.000	0.000	-8.632
0.800	0.080	0.000	0.000	-8.552
0.880	0.080	0.007	0.002	-8.472
0.960	0.080	0.019	0.004	-8.392
1.040	0.080	0.011	0.003	-8.312
1.120	0.080	0.009	0.002	-8.232
1.200	0.080	0.011	0.001	-8.152
1.280	0.080	0.022	0.002	-8.072
1.360	0.080	0.022	0.002	-7.992
1.440	0.080	0.043	0.003	-7.912
1.520	0.080	0.069	0.004	-7.832
1.600	0.080	0.128	0.005	-7.752

Continued on next page

TABLE XLVII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.282	0.010	-7.672
1.760	0.080	0.326	0.012	-7.592
1.840	0.080	0.238	0.011	-7.512
1.920	0.080	0.162	0.009	-7.432
2.000	0.080	0.137	0.009	-7.352
2.080	0.080	0.162	0.010	-7.272
2.160	0.080	0.126	0.010	-7.192
2.240	0.080	0.087	0.008	-7.112
2.320	0.080	0.064	0.007	-7.032
2.400	0.080	0.065	0.007	-6.952
2.480	0.080	0.057	0.007	-6.872
2.560	0.080	0.040	0.005	-6.792
2.640	0.080	0.045	0.005	-6.712
2.720	0.080	0.039	0.005	-6.632
2.800	0.080	0.044	0.006	-6.552
2.880	0.080	0.043	0.006	-6.472
2.960	0.080	0.051	0.006	-6.392
3.040	0.080	0.078	0.007	-6.312
3.120	0.080	0.089	0.008	-6.232
3.200	0.080	0.077	0.008	-6.152
3.280	0.080	0.077	0.008	-6.072
3.360	0.080	0.072	0.008	-5.992
3.440	0.080	0.081	0.009	-5.912
3.520	0.080	0.086	0.009	-5.832
3.600	0.080	0.079	0.008	-5.752
3.680	0.080	0.074	0.008	-5.672
3.760	0.080	0.067	0.008	-5.592
3.840	0.080	0.085	0.009	-5.512
3.920	0.080	0.081	0.009	-5.432
4.000	0.080	0.084	0.009	-5.352
4.080	0.080	0.074	0.008	-5.272
4.160	0.080	0.076	0.008	-5.192
4.240	0.080	0.075	0.009	-5.112
4.320	0.080	0.069	0.008	-5.032
4.400	0.080	0.074	0.008	-4.952
4.480	0.080	0.070	0.008	-4.872
4.560	0.080	0.083	0.009	-4.792
4.640	0.080	0.081	0.008	-4.712
4.720	0.080	0.083	0.008	-4.632
4.800	0.080	0.064	0.007	-4.552
4.880	0.080	0.081	0.008	-4.472
4.960	0.080	0.078	0.007	-4.392
5.040	0.080	0.069	0.008	-4.312
5.120	0.080	0.063	0.007	-4.232
5.200	0.080	0.080	0.008	-4.152
5.280	0.080	0.087	0.008	-4.072
5.360	0.080	0.080	0.007	-3.992
5.440	0.080	0.075	0.007	-3.912
5.520	0.080	0.078	0.008	-3.832
5.600	0.080	0.070	0.008	-3.752
5.680	0.080	0.074	0.008	-3.672
5.760	0.080	0.073	0.008	-3.592
5.840	0.080	0.062	0.008	-3.512
5.920	0.080	0.077	0.009	-3.432
6.000	0.080	0.063	0.008	-3.352
6.080	0.080	0.076	0.009	-3.272
6.160	0.080	0.072	0.008	-3.192
6.240	0.080	0.069	0.008	-3.112
6.320	0.080	0.076	0.008	-3.032
6.400	0.080	0.079	0.009	-2.952
6.480	0.080	0.074	0.008	-2.872

Continued on next page

TABLE XLVII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.068	0.008	-2.792
6.640	0.080	0.076	0.008	-2.712
6.720	0.080	0.062	0.007	-2.632
6.800	0.080	0.065	0.008	-2.552
6.880	0.080	0.054	0.007	-2.472
6.960	0.080	0.072	0.008	-2.392
7.040	0.080	0.063	0.007	-2.312
7.120	0.080	0.069	0.008	-2.232
7.200	0.080	0.061	0.007	-2.152
7.280	0.080	0.065	0.008	-2.072
7.360	0.080	0.075	0.008	-1.992
7.440	0.080	0.068	0.008	-1.912
7.520	0.080	0.073	0.009	-1.832
7.600	0.080	0.062	0.008	-1.752
7.680	0.080	0.062	0.008	-1.672
7.760	0.080	0.051	0.008	-1.592
7.840	0.080	0.061	0.008	-1.512
7.920	0.080	0.067	0.008	-1.432
8.000	0.080	0.059	0.008	-1.352
8.080	0.080	0.054	0.007	-1.272
8.160	0.080	0.066	0.008	-1.192
8.240	0.080	0.077	0.009	-1.112
8.320	0.080	0.069	0.008	-1.032
8.400	0.080	0.072	0.008	-0.952
8.480	0.080	0.051	0.007	-0.872
8.560	0.080	0.069	0.008	-0.792
8.640	0.080	0.079	0.009	-0.712
8.720	0.080	0.060	0.008	-0.632
8.800	0.080	0.065	0.008	-0.552
8.880	0.080	0.068	0.007	-0.472
8.960	0.080	0.070	0.008	-0.392
9.040	0.080	0.067	0.008	-0.312
9.120	0.080	0.062	0.008	-0.232
9.200	0.080	0.067	0.008	-0.152
9.280	0.080	0.054	0.008	-0.072
9.360	0.080	0.046	0.007	0.008
9.440	0.080	0.054	0.008	0.088
9.520	0.080	0.055	0.008	0.168
9.600	0.080	0.043	0.007	0.248
9.680	0.080	0.041	0.007	0.328
9.760	0.080	0.036	0.007	0.408
9.840	0.080	0.037	0.006	0.488
9.920	0.080	0.020	0.005	0.568
10.000	0.080	0.012	0.005	0.648
10.080	0.080	0.014	0.004	0.728
10.160	0.080	0.018	0.004	0.808
10.240	0.080	0.010	0.003	0.888
10.320	0.080	0.013	0.004	0.968
10.400	0.080	0.018	0.004	1.048
10.480	0.080	0.042	0.007	1.128
10.560	0.080	0.039	0.007	1.208
10.640	0.080	0.030	0.007	1.288
10.720	0.080	0.036	0.008	1.368
10.800	0.080	0.035	0.007	1.448
10.880	0.080	0.019	0.006	1.528
10.960	0.080	0.013	0.005	1.608
11.040	0.080	0.017	0.005	1.688
11.120	0.080	0.018	0.005	1.768
11.200	0.080	0.012	0.005	1.848
11.280	0.080	0.020	0.007	1.928
11.360	0.080	0.021	0.007	2.008

Continued on next page

TABLE XLVII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.042	0.011	2.088
11.520	0.080	0.021	0.011	2.168
11.600	0.080	0.029	0.015	2.248
11.680	0.080	0.010	0.015	2.328
11.760	0.080	0.049	0.022	2.408
11.840	0.080	0.033	0.021	2.488
11.920	0.080	0.080	0.029	2.568
12.000	0.080	0.008	0.024	2.648
12.080	0.080	0.018	0.018	2.728
12.160	0.080	0.077	0.044	2.808
12.240	0.080	0.036	0.036	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.130	0.130	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.281	0.281	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLVII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

13. ^{88}Y γ-ray 1088.210 keV

^{88}Y nucleus
γ-ray observed 1088.210 keV
γ-ray originates in initial state at 1088.210 keV and goes to final state at 0.000 keV
Initial state is (4,5,6)- and final state is 4- transition is type (M1,E2,M3)
Internal conversion coefficent α is 1.000

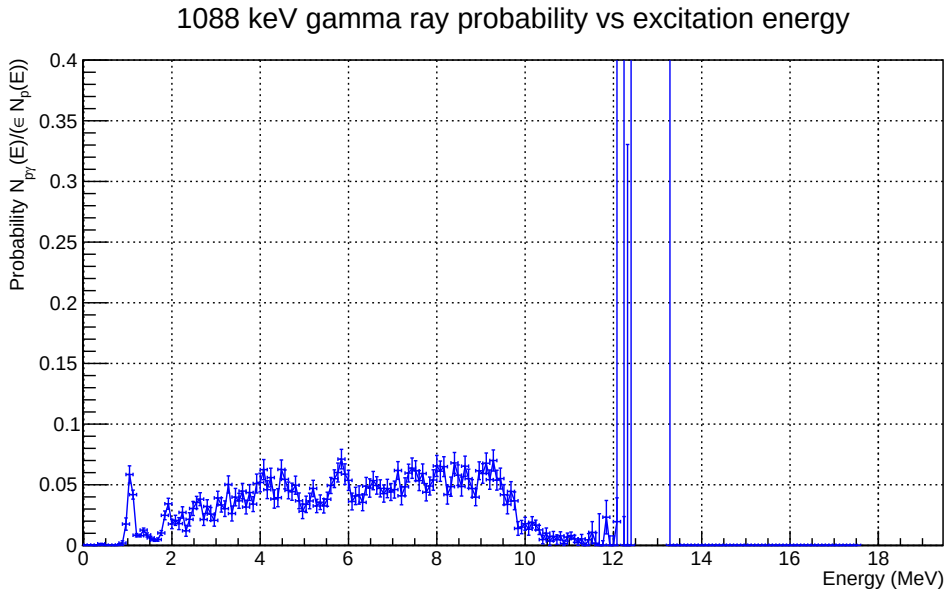

FIG. 66: Gamma ray probability distribution of the 1088.210 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLVIII: ^{89}Y(p,d)^{88}Y probability versus energy for 1088.210 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.001	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.000	-8.712
0.720	0.080	0.000	0.000	-8.632
0.800	0.080	0.000	0.001	-8.552
0.880	0.080	0.002	0.002	-8.472
0.960	0.080	0.018	0.005	-8.392
1.040	0.080	0.058	0.007	-8.312
1.120	0.080	0.042	0.004	-8.232
1.200	0.080	0.008	0.001	-8.152
1.280	0.080	0.008	0.001	-8.072
1.360	0.080	0.013	0.002	-7.992
1.440	0.080	0.009	0.002	-7.912
1.520	0.080	0.006	0.001	-7.832
1.600	0.080	0.004	0.001	-7.752

Continued on next page

TABLE XLVIII – continued from previous page

E_{exc} (MeV)	E_{unc} (MeV)	P_{γ} (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
1.680	0.080	0.005	0.001	-7.672
1.760	0.080	0.010	0.002	-7.592
1.840	0.080	0.025	0.004	-7.512
1.920	0.080	0.034	0.005	-7.432
2.000	0.080	0.018	0.004	-7.352
2.080	0.080	0.021	0.004	-7.272
2.160	0.080	0.018	0.005	-7.192
2.240	0.080	0.027	0.005	-7.112
2.320	0.080	0.012	0.005	-7.032
2.400	0.080	0.022	0.005	-6.952
2.480	0.080	0.030	0.006	-6.872
2.560	0.080	0.035	0.005	-6.792
2.640	0.080	0.038	0.005	-6.712
2.720	0.080	0.021	0.005	-6.632
2.800	0.080	0.032	0.006	-6.552
2.880	0.080	0.026	0.005	-6.472
2.960	0.080	0.021	0.005	-6.392
3.040	0.080	0.039	0.006	-6.312
3.120	0.080	0.033	0.006	-6.232
3.200	0.080	0.030	0.006	-6.152
3.280	0.080	0.050	0.007	-6.072
3.360	0.080	0.026	0.006	-5.992
3.440	0.080	0.040	0.007	-5.912
3.520	0.080	0.037	0.006	-5.832
3.600	0.080	0.045	0.006	-5.752
3.680	0.080	0.032	0.006	-5.672
3.760	0.080	0.044	0.007	-5.592
3.840	0.080	0.034	0.006	-5.512
3.920	0.080	0.051	0.008	-5.432
4.000	0.080	0.052	0.008	-5.352
4.080	0.080	0.062	0.008	-5.272
4.160	0.080	0.046	0.007	-5.192
4.240	0.080	0.056	0.008	-5.112
4.320	0.080	0.038	0.008	-5.032
4.400	0.080	0.039	0.007	-4.952
4.480	0.080	0.063	0.008	-4.872
4.560	0.080	0.054	0.008	-4.792
4.640	0.080	0.045	0.007	-4.712
4.720	0.080	0.044	0.007	-4.632
4.800	0.080	0.050	0.007	-4.552
4.880	0.080	0.037	0.006	-4.472
4.960	0.080	0.028	0.006	-4.392
5.040	0.080	0.034	0.007	-4.312
5.120	0.080	0.037	0.006	-4.232
5.200	0.080	0.047	0.007	-4.152
5.280	0.080	0.032	0.005	-4.072
5.360	0.080	0.036	0.006	-3.992
5.440	0.080	0.033	0.006	-3.912
5.520	0.080	0.038	0.006	-3.832
5.600	0.080	0.049	0.007	-3.752
5.680	0.080	0.055	0.007	-3.672
5.760	0.080	0.060	0.008	-3.592
5.840	0.080	0.071	0.008	-3.512
5.920	0.080	0.059	0.008	-3.432
6.000	0.080	0.054	0.008	-3.352
6.080	0.080	0.036	0.007	-3.272
6.160	0.080	0.041	0.007	-3.192
6.240	0.080	0.042	0.008	-3.112
6.320	0.080	0.036	0.007	-3.032
6.400	0.080	0.049	0.007	-2.952
6.480	0.080	0.047	0.008	-2.872

Continued on next page

TABLE XLVIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.053	0.008	-2.792
6.640	0.080	0.049	0.007	-2.712
6.720	0.080	0.047	0.007	-2.632
6.800	0.080	0.043	0.007	-2.552
6.880	0.080	0.047	0.008	-2.472
6.960	0.080	0.044	0.007	-2.392
7.040	0.080	0.046	0.007	-2.312
7.120	0.080	0.062	0.007	-2.232
7.200	0.080	0.041	0.007	-2.152
7.280	0.080	0.048	0.007	-2.072
7.360	0.080	0.060	0.007	-1.992
7.440	0.080	0.064	0.008	-1.912
7.520	0.080	0.062	0.008	-1.832
7.600	0.080	0.054	0.008	-1.752
7.680	0.080	0.059	0.008	-1.672
7.760	0.080	0.044	0.007	-1.592
7.840	0.080	0.049	0.007	-1.512
7.920	0.080	0.054	0.008	-1.432
8.000	0.080	0.065	0.009	-1.352
8.080	0.080	0.061	0.008	-1.272
8.160	0.080	0.065	0.008	-1.192
8.240	0.080	0.042	0.008	-1.112
8.320	0.080	0.048	0.008	-1.032
8.400	0.080	0.068	0.009	-0.952
8.480	0.080	0.058	0.008	-0.872
8.560	0.080	0.049	0.008	-0.792
8.640	0.080	0.065	0.008	-0.712
8.720	0.080	0.055	0.008	-0.632
8.800	0.080	0.047	0.007	-0.552
8.880	0.080	0.040	0.007	-0.472
8.960	0.080	0.062	0.007	-0.392
9.040	0.080	0.059	0.008	-0.312
9.120	0.080	0.068	0.008	-0.232
9.200	0.080	0.054	0.008	-0.152
9.280	0.080	0.070	0.009	-0.072
9.360	0.080	0.054	0.008	0.008
9.440	0.080	0.055	0.009	0.088
9.520	0.080	0.042	0.008	0.168
9.600	0.080	0.034	0.008	0.248
9.680	0.080	0.045	0.008	0.328
9.760	0.080	0.037	0.007	0.408
9.840	0.080	0.014	0.006	0.488
9.920	0.080	0.015	0.005	0.568
10.000	0.080	0.018	0.005	0.648
10.080	0.080	0.013	0.005	0.728
10.160	0.080	0.019	0.005	0.808
10.240	0.080	0.017	0.004	0.888
10.320	0.080	0.013	0.004	0.968
10.400	0.080	0.005	0.003	1.048
10.480	0.080	0.010	0.004	1.128
10.560	0.080	0.004	0.004	1.208
10.640	0.080	0.007	0.004	1.288
10.720	0.080	0.005	0.004	1.368
10.800	0.080	0.008	0.003	1.448
10.880	0.080	0.002	0.003	1.528
10.960	0.080	0.007	0.003	1.608
11.040	0.080	0.008	0.003	1.688
11.120	0.080	0.005	0.003	1.768
11.200	0.080	0.002	0.002	1.848
11.280	0.080	0.005	0.004	1.928
11.360	0.080	0.000	0.002	2.008

Continued on next page

TABLE XLVIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.005	0.005	2.088
11.520	0.080	0.011	0.009	2.168
11.600	0.080	0.002	0.009	2.248
11.680	0.080	0.000	0.026	2.328
11.760	0.080	0.000	0.004	2.408
11.840	0.080	0.023	0.014	2.488
11.920	0.080	0.000	0.008	2.568
12.000	0.080	0.000	0.008	2.648
12.080	0.080	0.020	0.020	2.728
12.160	0.080	935824.625	14120225.000	2.808
12.240	0.080	0.000	0.024	2.888
12.320	0.080	0.000	0.330	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	3443383.500	28486258.000	3.128
12.560	0.080	4739649.000	39209940.000	3.208
12.640	0.080	6920117.000	57248412.000	3.288
12.720	0.080	10243757.000	84744056.000	3.368
12.800	0.080	18679792.000	154533280.000	3.448
12.880	0.080	31065308.000	256995584.000	3.528
12.960	0.080	73282264.000	606245952.000	3.608
13.040	0.080	178625520.000	1477724544.000	3.688
13.120	0.080	408286912.000	3377656320.000	3.768
13.200	0.080	2858008320.000	23643592704.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLVIII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

14. ^{88}Y γ-ray 1177.300 keV

^{88}Y nucleus
γ-ray observed 1177.300 keV
γ-ray originates in initial state at 1570.370 keV and goes to final state at 392.860 keV
Initial state is (X) and final state is 1+ transition is type (X)
Internal conversion coefficent α is 1.000

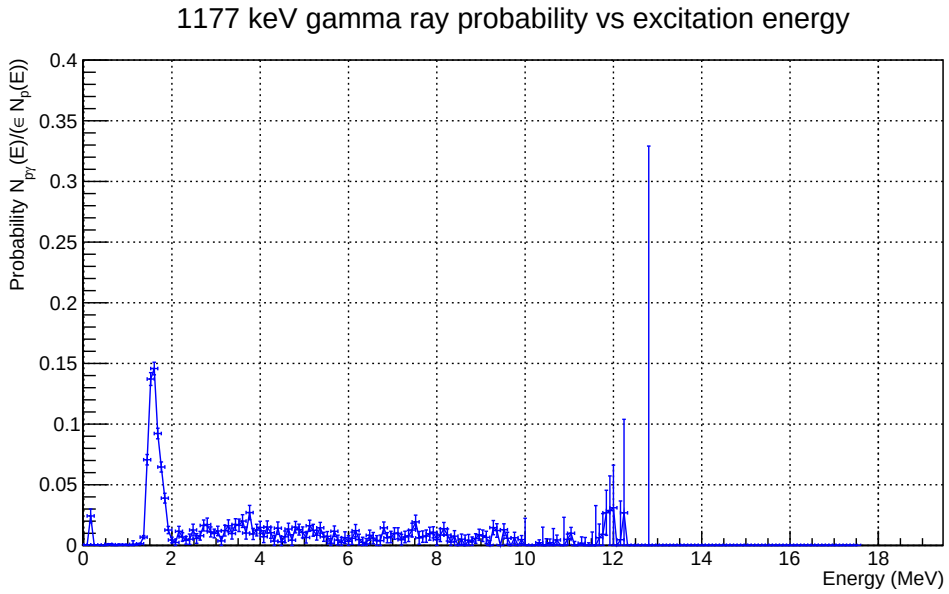

FIG. 67: Gamma ray probability distribution of the 1177.300 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE XLIX: ^{89}Y(p,d)^{88}Y probability versus energy for 1177.300 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.024	0.006	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.001	0.000	-8.792
0.640	0.080	0.001	0.001	-8.712
0.720	0.080	0.000	0.001	-8.632
0.800	0.080	0.001	0.001	-8.552
0.880	0.080	0.000	0.001	-8.472
0.960	0.080	0.000	0.001	-8.392
1.040	0.080	0.000	0.000	-8.312
1.120	0.080	0.001	0.003	-8.232
1.200	0.080	0.001	0.000	-8.152
1.280	0.080	0.001	0.001	-8.072
1.360	0.080	0.007	0.001	-7.992
1.440	0.080	0.071	0.004	-7.912
1.520	0.080	0.137	0.005	-7.832
1.600	0.080	0.146	0.005	-7.752

Continued on next page

TABLE XLIX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.092	0.004	-7.672
1.760	0.080	0.065	0.004	-7.592
1.840	0.080	0.039	0.004	-7.512
1.920	0.080	0.013	0.003	-7.432
2.000	0.080	0.004	0.002	-7.352
2.080	0.080	0.002	0.003	-7.272
2.160	0.080	0.012	0.004	-7.192
2.240	0.080	0.007	0.003	-7.112
2.320	0.080	0.004	0.003	-7.032
2.400	0.080	0.005	0.004	-6.952
2.480	0.080	0.013	0.005	-6.872
2.560	0.080	0.006	0.004	-6.792
2.640	0.080	0.008	0.004	-6.712
2.720	0.080	0.016	0.005	-6.632
2.800	0.080	0.017	0.005	-6.552
2.880	0.080	0.011	0.004	-6.472
2.960	0.080	0.010	0.004	-6.392
3.040	0.080	0.012	0.004	-6.312
3.120	0.080	0.004	0.004	-6.232
3.200	0.080	0.012	0.004	-6.152
3.280	0.080	0.016	0.005	-6.072
3.360	0.080	0.010	0.005	-5.992
3.440	0.080	0.017	0.005	-5.912
3.520	0.080	0.017	0.005	-5.832
3.600	0.080	0.020	0.005	-5.752
3.680	0.080	0.010	0.005	-5.672
3.760	0.080	0.027	0.006	-5.592
3.840	0.080	0.009	0.005	-5.512
3.920	0.080	0.013	0.005	-5.432
4.000	0.080	0.015	0.005	-5.352
4.080	0.080	0.007	0.005	-5.272
4.160	0.080	0.015	0.005	-5.192
4.240	0.080	0.010	0.005	-5.112
4.320	0.080	0.004	0.005	-5.032
4.400	0.080	0.014	0.005	-4.952
4.480	0.080	0.003	0.005	-4.872
4.560	0.080	0.007	0.005	-4.792
4.640	0.080	0.014	0.005	-4.712
4.720	0.080	0.004	0.004	-4.632
4.800	0.080	0.015	0.005	-4.552
4.880	0.080	0.013	0.004	-4.472
4.960	0.080	0.011	0.005	-4.392
5.040	0.080	0.007	0.005	-4.312
5.120	0.080	0.016	0.005	-4.232
5.200	0.080	0.013	0.005	-4.152
5.280	0.080	0.008	0.004	-4.072
5.360	0.080	0.014	0.004	-3.992
5.440	0.080	0.007	0.004	-3.912
5.520	0.080	0.007	0.004	-3.832
5.600	0.080	0.002	0.004	-3.752
5.680	0.080	0.012	0.004	-3.672
5.760	0.080	0.004	0.004	-3.592
5.840	0.080	0.002	0.004	-3.512
5.920	0.080	0.006	0.005	-3.432
6.000	0.080	0.003	0.005	-3.352
6.080	0.080	0.006	0.005	-3.272
6.160	0.080	0.012	0.005	-3.192
6.240	0.080	0.005	0.004	-3.112
6.320	0.080	0.002	0.004	-3.032
6.400	0.080	0.001	0.004	-2.952
6.480	0.080	0.008	0.004	-2.872

Continued on next page

TABLE XLIX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.006	0.005	-2.792
6.640	0.080	0.004	0.004	-2.712
6.720	0.080	0.004	0.005	-2.632
6.800	0.080	0.014	0.005	-2.552
6.880	0.080	0.006	0.004	-2.472
6.960	0.080	0.007	0.005	-2.392
7.040	0.080	0.010	0.005	-2.312
7.120	0.080	0.010	0.005	-2.232
7.200	0.080	0.005	0.004	-2.152
7.280	0.080	0.007	0.005	-2.072
7.360	0.080	0.008	0.005	-1.992
7.440	0.080	0.013	0.006	-1.912
7.520	0.080	0.019	0.006	-1.832
7.600	0.080	0.006	0.005	-1.752
7.680	0.080	0.007	0.005	-1.672
7.760	0.080	0.008	0.005	-1.592
7.840	0.080	0.010	0.005	-1.512
7.920	0.080	0.011	0.005	-1.432
8.000	0.080	0.005	0.005	-1.352
8.080	0.080	0.009	0.005	-1.272
8.160	0.080	0.014	0.005	-1.192
8.240	0.080	0.009	0.005	-1.112
8.320	0.080	0.003	0.004	-1.032
8.400	0.080	0.008	0.005	-0.952
8.480	0.080	0.000	0.000	-0.872
8.560	0.080	0.005	0.004	-0.792
8.640	0.080	0.000	0.009	-0.712
8.720	0.080	0.004	0.005	-0.632
8.800	0.080	0.003	0.004	-0.552
8.880	0.080	0.006	0.004	-0.472
8.960	0.080	0.009	0.005	-0.392
9.040	0.080	0.008	0.005	-0.312
9.120	0.080	0.007	0.005	-0.232
9.200	0.080	0.000	0.004	-0.152
9.280	0.080	0.015	0.006	-0.072
9.360	0.080	0.012	0.006	0.008
9.440	0.080	0.000	0.000	0.088
9.520	0.080	0.013	0.005	0.168
9.600	0.080	0.006	0.005	0.248
9.680	0.080	0.000	0.000	0.328
9.760	0.080	0.006	0.005	0.408
9.840	0.080	0.000	0.000	0.488
9.920	0.080	0.005	0.003	0.568
10.000	0.080	0.000	0.022	0.648
10.080	0.080	0.000	0.000	0.728
10.160	0.080	0.000	0.000	0.808
10.240	0.080	0.000	0.000	0.888
10.320	0.080	0.002	0.002	0.968
10.400	0.080	0.000	0.015	1.048
10.480	0.080	0.000	0.006	1.128
10.560	0.080	0.002	0.003	1.208
10.640	0.080	0.000	0.014	1.288
10.720	0.080	0.004	0.004	1.368
10.800	0.080	0.000	0.000	1.448
10.880	0.080	0.000	0.023	1.528
10.960	0.080	0.005	0.004	1.608
11.040	0.080	0.010	0.005	1.688
11.120	0.080	0.000	0.003	1.768
11.200	0.080	0.000	0.000	1.848
11.280	0.080	0.002	0.005	1.928
11.360	0.080	0.000	0.007	2.008

Continued on next page

TABLE XLIX – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.002	2.088
11.520	0.080	0.000	0.011	2.168
11.600	0.080	0.000	0.033	2.248
11.680	0.080	0.006	0.011	2.328
11.760	0.080	0.009	0.017	2.408
11.840	0.080	0.027	0.019	2.488
11.920	0.080	0.029	0.029	2.568
12.000	0.080	0.031	0.035	2.648
12.080	0.080	0.000	0.000	2.728
12.160	0.080	0.005	0.032	2.808
12.240	0.080	0.027	0.077	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.329	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE XLIX – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

15. ^{88}Y γ-ray 1267.000 keV

^{88}Y nucleus
γ-ray observed 1267.000 keV
γ-ray originates in initial state at 1267.000 keV and goes to final state at 0.000 keV
Initial state is (X) and final state is 4- transition is type (X)
Internal conversion coefficent α is 1.000

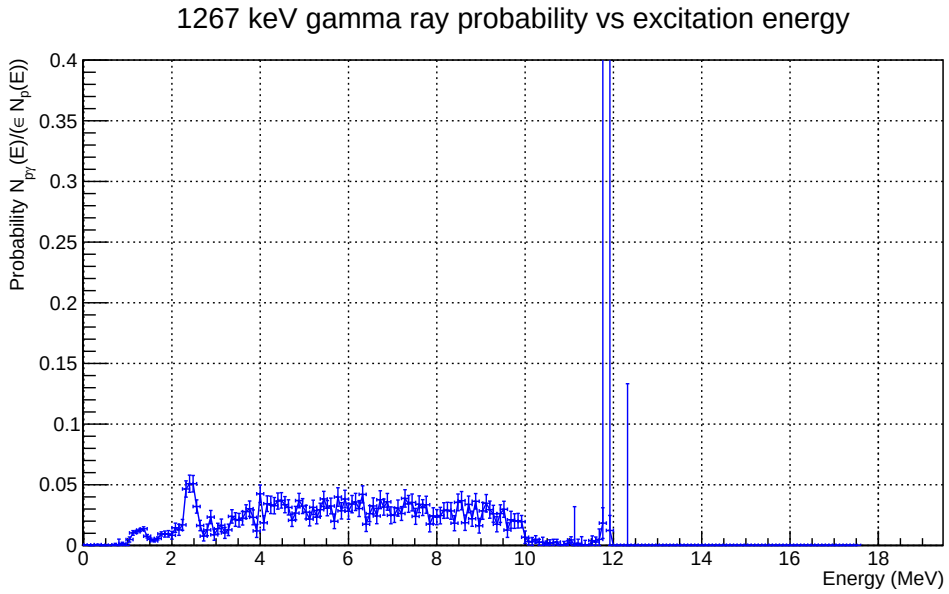

FIG. 68: Gamma ray probability distribution of the 1267.000 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE L: ^{89}Y(p,d)^{88}Y probability versus energy for 1267.000 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.001	0.000	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.000	-8.712
0.720	0.080	0.001	0.001	-8.632
0.800	0.080	0.000	0.005	-8.552
0.880	0.080	0.002	0.001	-8.472
0.960	0.080	0.000	0.000	-8.392
1.040	0.080	0.005	0.002	-8.312
1.120	0.080	0.010	0.002	-8.232
1.200	0.080	0.011	0.001	-8.152
1.280	0.080	0.013	0.001	-8.072
1.360	0.080	0.014	0.002	-7.992
1.440	0.080	0.008	0.001	-7.912
1.520	0.080	0.005	0.001	-7.832
1.600	0.080	0.004	0.001	-7.752

Continued on next page

TABLE L – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.006	0.001	-7.672
1.760	0.080	0.009	0.002	-7.592
1.840	0.080	0.009	0.002	-7.512
1.920	0.080	0.010	0.003	-7.432
2.000	0.080	0.008	0.003	-7.352
2.080	0.080	0.015	0.004	-7.272
2.160	0.080	0.013	0.005	-7.192
2.240	0.080	0.017	0.004	-7.112
2.320	0.080	0.047	0.007	-7.032
2.400	0.080	0.051	0.007	-6.952
2.480	0.080	0.051	0.007	-6.872
2.560	0.080	0.032	0.005	-6.792
2.640	0.080	0.016	0.004	-6.712
2.720	0.080	0.008	0.004	-6.632
2.800	0.080	0.013	0.005	-6.552
2.880	0.080	0.023	0.005	-6.472
2.960	0.080	0.009	0.005	-6.392
3.040	0.080	0.014	0.004	-6.312
3.120	0.080	0.017	0.005	-6.232
3.200	0.080	0.010	0.005	-6.152
3.280	0.080	0.013	0.005	-6.072
3.360	0.080	0.024	0.006	-5.992
3.440	0.080	0.021	0.006	-5.912
3.520	0.080	0.021	0.006	-5.832
3.600	0.080	0.023	0.006	-5.752
3.680	0.080	0.028	0.006	-5.672
3.760	0.080	0.030	0.006	-5.592
3.840	0.080	0.023	0.006	-5.512
3.920	0.080	0.012	0.005	-5.432
4.000	0.080	0.043	0.007	-5.352
4.080	0.080	0.019	0.006	-5.272
4.160	0.080	0.034	0.006	-5.192
4.240	0.080	0.033	0.007	-5.112
4.320	0.080	0.033	0.007	-5.032
4.400	0.080	0.037	0.007	-4.952
4.480	0.080	0.037	0.006	-4.872
4.560	0.080	0.034	0.007	-4.792
4.640	0.080	0.031	0.006	-4.712
4.720	0.080	0.021	0.005	-4.632
4.800	0.080	0.027	0.006	-4.552
4.880	0.080	0.037	0.006	-4.472
4.960	0.080	0.032	0.006	-4.392
5.040	0.080	0.027	0.006	-4.312
5.120	0.080	0.022	0.006	-4.232
5.200	0.080	0.031	0.006	-4.152
5.280	0.080	0.023	0.005	-4.072
5.360	0.080	0.029	0.005	-3.992
5.440	0.080	0.038	0.006	-3.912
5.520	0.080	0.031	0.006	-3.832
5.600	0.080	0.032	0.007	-3.752
5.680	0.080	0.020	0.006	-3.672
5.760	0.080	0.040	0.008	-3.592
5.840	0.080	0.029	0.007	-3.512
5.920	0.080	0.038	0.007	-3.432
6.000	0.080	0.028	0.007	-3.352
6.080	0.080	0.034	0.007	-3.272
6.160	0.080	0.036	0.007	-3.192
6.240	0.080	0.030	0.007	-3.112
6.320	0.080	0.042	0.007	-3.032
6.400	0.080	0.018	0.006	-2.952
6.480	0.080	0.026	0.007	-2.872

Continued on next page

TABLE L – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.032	0.007	-2.792
6.640	0.080	0.024	0.006	-2.712
6.720	0.080	0.038	0.007	-2.632
6.800	0.080	0.032	0.007	-2.552
6.880	0.080	0.036	0.007	-2.472
6.960	0.080	0.025	0.007	-2.392
7.040	0.080	0.025	0.006	-2.312
7.120	0.080	0.031	0.007	-2.232
7.200	0.080	0.026	0.006	-2.152
7.280	0.080	0.039	0.007	-2.072
7.360	0.080	0.034	0.007	-1.992
7.440	0.080	0.035	0.007	-1.912
7.520	0.080	0.024	0.007	-1.832
7.600	0.080	0.034	0.007	-1.752
7.680	0.080	0.031	0.007	-1.672
7.760	0.080	0.034	0.007	-1.592
7.840	0.080	0.018	0.006	-1.512
7.920	0.080	0.024	0.007	-1.432
8.000	0.080	0.023	0.006	-1.352
8.080	0.080	0.025	0.007	-1.272
8.160	0.080	0.029	0.006	-1.192
8.240	0.080	0.029	0.007	-1.112
8.320	0.080	0.028	0.007	-1.032
8.400	0.080	0.018	0.006	-0.952
8.480	0.080	0.036	0.007	-0.872
8.560	0.080	0.037	0.008	-0.792
8.640	0.080	0.019	0.006	-0.712
8.720	0.080	0.034	0.007	-0.632
8.800	0.080	0.022	0.006	-0.552
8.880	0.080	0.036	0.006	-0.472
8.960	0.080	0.016	0.006	-0.392
9.040	0.080	0.029	0.007	-0.312
9.120	0.080	0.035	0.007	-0.232
9.200	0.080	0.030	0.007	-0.152
9.280	0.080	0.026	0.007	-0.072
9.360	0.080	0.017	0.006	0.008
9.440	0.080	0.026	0.007	0.088
9.520	0.080	0.030	0.007	0.168
9.600	0.080	0.013	0.006	0.248
9.680	0.080	0.021	0.007	0.328
9.760	0.080	0.020	0.006	0.408
9.840	0.080	0.020	0.006	0.488
9.920	0.080	0.020	0.005	0.568
10.000	0.080	0.007	0.005	0.648
10.080	0.080	0.003	0.003	0.728
10.160	0.080	0.003	0.004	0.808
10.240	0.080	0.005	0.003	0.888
10.320	0.080	0.002	0.002	0.968
10.400	0.080	0.003	0.004	1.048
10.480	0.080	0.001	0.003	1.128
10.560	0.080	0.002	0.002	1.208
10.640	0.080	0.002	0.003	1.288
10.720	0.080	0.003	0.002	1.368
10.800	0.080	0.000	0.000	1.448
10.880	0.080	0.001	0.003	1.528
10.960	0.080	0.002	0.002	1.608
11.040	0.080	0.005	0.003	1.688
11.120	0.080	0.000	0.032	1.768
11.200	0.080	0.002	0.003	1.848
11.280	0.080	0.000	0.007	1.928
11.360	0.080	0.000	0.004	2.008

Continued on next page

TABLE L – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.000	2.088
11.520	0.080	0.004	0.004	2.168
11.600	0.080	0.003	0.004	2.248
11.680	0.080	0.005	0.009	2.328
11.760	0.080	0.018	0.013	2.408
11.840	0.080	347966.438	3262951.250	2.488
11.920	0.080	0.012	0.012	2.568
12.000	0.080	0.000	0.000	2.648
12.080	0.080	0.000	0.000	2.728
12.160	0.080	0.000	0.000	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.000	0.133	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE L – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

16. ^{88}Y γ-ray 1760.000 keV

^{88}Y nucleus
γ-ray observed 1760.000 keV
γ-ray originates in initial state at 1760.000 keV and goes to final state at 0.000 keV
Initial state is (3,4,5)- and final state is 4- transition is type (X)
Internal conversion coefficent α is 1.000

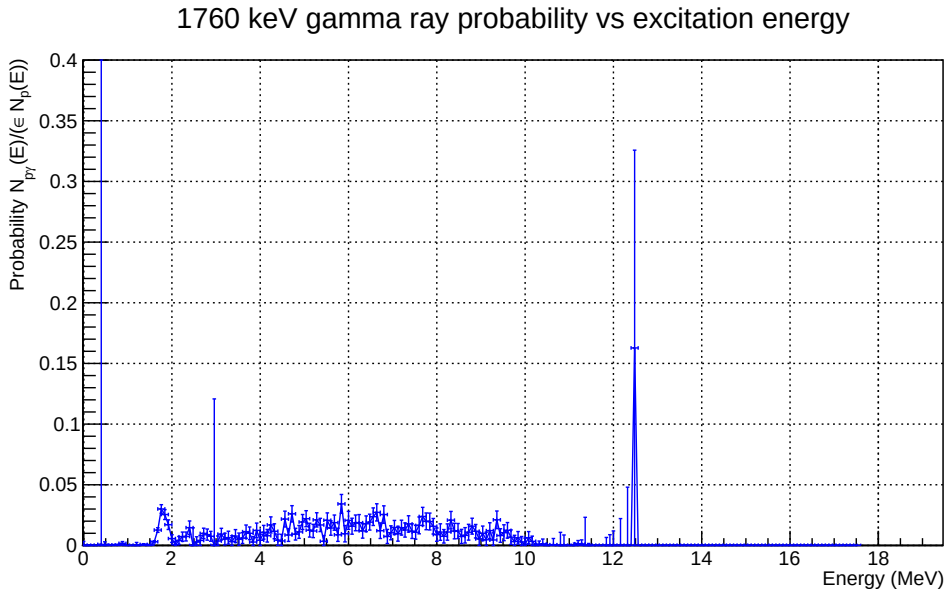

FIG. 69: Gamma ray probability distribution of the 1760.000 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE LI: ^{89}Y(p,d)^{88}Y probability versus energy for 1760.000 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.003	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.001	48409.469	-8.952
0.480	0.080	0.000	0.003	-8.872
0.560	0.080	0.000	0.001	-8.792
0.640	0.080	0.000	0.000	-8.712
0.720	0.080	0.000	0.001	-8.632
0.800	0.080	0.000	0.001	-8.552
0.880	0.080	0.002	0.001	-8.472
0.960	0.080	0.000	0.000	-8.392
1.040	0.080	0.000	0.000	-8.312
1.120	0.080	0.000	0.000	-8.232
1.200	0.080	0.000	0.002	-8.152
1.280	0.080	0.000	0.000	-8.072
1.360	0.080	0.001	0.001	-7.992
1.440	0.080	0.000	0.001	-7.912
1.520	0.080	0.000	0.001	-7.832
1.600	0.080	0.003	0.001	-7.752

Continued on next page

TABLE LI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.013	0.002	-7.672
1.760	0.080	0.030	0.004	-7.592
1.840	0.080	0.025	0.004	-7.512
1.920	0.080	0.017	0.004	-7.432
2.000	0.080	0.006	0.003	-7.352
2.080	0.080	0.001	0.002	-7.272
2.160	0.080	0.004	0.003	-7.192
2.240	0.080	0.007	0.004	-7.112
2.320	0.080	0.007	0.004	-7.032
2.400	0.080	0.015	0.005	-6.952
2.480	0.080	0.000	0.015	-6.872
2.560	0.080	0.003	0.004	-6.792
2.640	0.080	0.004	0.004	-6.712
2.720	0.080	0.010	0.004	-6.632
2.800	0.080	0.009	0.005	-6.552
2.880	0.080	0.007	0.004	-6.472
2.960	0.080	0.000	0.121	-6.392
3.040	0.080	0.004	0.004	-6.312
3.120	0.080	0.009	0.005	-6.232
3.200	0.080	0.005	0.005	-6.152
3.280	0.080	0.006	0.005	-6.072
3.360	0.080	0.003	0.005	-5.992
3.440	0.080	0.008	0.005	-5.912
3.520	0.080	0.005	0.005	-5.832
3.600	0.080	0.006	0.004	-5.752
3.680	0.080	0.011	0.005	-5.672
3.760	0.080	0.010	0.005	-5.592
3.840	0.080	0.003	0.004	-5.512
3.920	0.080	0.012	0.006	-5.432
4.000	0.080	0.004	0.005	-5.352
4.080	0.080	0.011	0.006	-5.272
4.160	0.080	0.008	0.005	-5.192
4.240	0.080	0.017	0.007	-5.112
4.320	0.080	0.012	0.006	-5.032
4.400	0.080	0.004	0.005	-4.952
4.480	0.080	0.004	0.005	-4.872
4.560	0.080	0.022	0.007	-4.792
4.640	0.080	0.009	0.005	-4.712
4.720	0.080	0.026	0.007	-4.632
4.800	0.080	0.009	0.005	-4.552
4.880	0.080	0.011	0.005	-4.472
4.960	0.080	0.019	0.006	-4.392
5.040	0.080	0.022	0.007	-4.312
5.120	0.080	0.013	0.006	-4.232
5.200	0.080	0.012	0.005	-4.152
5.280	0.080	0.021	0.006	-4.072
5.360	0.080	0.017	0.005	-3.992
5.440	0.080	0.003	0.005	-3.912
5.520	0.080	0.021	0.006	-3.832
5.600	0.080	0.014	0.006	-3.752
5.680	0.080	0.019	0.006	-3.672
5.760	0.080	0.009	0.005	-3.592
5.840	0.080	0.034	0.008	-3.512
5.920	0.080	0.010	0.007	-3.432
6.000	0.080	0.021	0.007	-3.352
6.080	0.080	0.016	0.007	-3.272
6.160	0.080	0.019	0.006	-3.192
6.240	0.080	0.019	0.007	-3.112
6.320	0.080	0.012	0.006	-3.032
6.400	0.080	0.018	0.006	-2.952
6.480	0.080	0.019	0.007	-2.872

Continued on next page

TABLE LI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.024	0.007	-2.792
6.640	0.080	0.027	0.007	-2.712
6.720	0.080	0.012	0.006	-2.632
6.800	0.080	0.025	0.007	-2.552
6.880	0.080	0.007	0.006	-2.472
6.960	0.080	0.010	0.006	-2.392
7.040	0.080	0.015	0.006	-2.312
7.120	0.080	0.010	0.006	-2.232
7.200	0.080	0.015	0.006	-2.152
7.280	0.080	0.013	0.006	-2.072
7.360	0.080	0.018	0.007	-1.992
7.440	0.080	0.012	0.006	-1.912
7.520	0.080	0.011	0.006	-1.832
7.600	0.080	0.016	0.007	-1.752
7.680	0.080	0.024	0.008	-1.672
7.760	0.080	0.020	0.007	-1.592
7.840	0.080	0.020	0.007	-1.512
7.920	0.080	0.016	0.006	-1.432
8.000	0.080	0.009	0.005	-1.352
8.080	0.080	0.011	0.007	-1.272
8.160	0.080	0.007	0.006	-1.192
8.240	0.080	0.011	0.007	-1.112
8.320	0.080	0.021	0.007	-1.032
8.400	0.080	0.012	0.006	-0.952
8.480	0.080	0.012	0.006	-0.872
8.560	0.080	0.007	0.006	-0.792
8.640	0.080	0.008	0.006	-0.712
8.720	0.080	0.011	0.007	-0.632
8.800	0.080	0.016	0.007	-0.552
8.880	0.080	0.012	0.006	-0.472
8.960	0.080	0.005	0.006	-0.392
9.040	0.080	0.010	0.006	-0.312
9.120	0.080	0.005	0.006	-0.232
9.200	0.080	0.012	0.006	-0.152
9.280	0.080	0.004	0.006	-0.072
9.360	0.080	0.021	0.007	0.008
9.440	0.080	0.008	0.006	0.088
9.520	0.080	0.010	0.007	0.168
9.600	0.080	0.012	0.006	0.248
9.680	0.080	0.007	0.006	0.328
9.760	0.080	0.003	0.005	0.408
9.840	0.080	0.006	0.005	0.488
9.920	0.080	0.003	0.004	0.568
10.000	0.080	0.001	0.005	0.648
10.080	0.080	0.006	0.005	0.728
10.160	0.080	0.003	0.004	0.808
10.240	0.080	0.000	0.002	0.888
10.320	0.080	0.001	0.003	0.968
10.400	0.080	0.001	0.004	1.048
10.480	0.080	0.000	0.001	1.128
10.560	0.080	0.000	0.000	1.208
10.640	0.080	0.001	0.005	1.288
10.720	0.080	0.000	0.000	1.368
10.800	0.080	0.000	0.011	1.448
10.880	0.080	0.000	0.009	1.528
10.960	0.080	0.000	0.000	1.608
11.040	0.080	0.000	0.000	1.688
11.120	0.080	0.000	0.002	1.768
11.200	0.080	0.001	0.003	1.848
11.280	0.080	0.001	0.003	1.928
11.360	0.080	0.000	0.023	2.008

Continued on next page

TABLE LI – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.000	0.002	2.088
11.520	0.080	0.000	0.000	2.168
11.600	0.080	0.000	0.000	2.248
11.680	0.080	0.000	0.000	2.328
11.760	0.080	0.000	0.000	2.408
11.840	0.080	0.000	0.007	2.488
11.920	0.080	0.000	0.009	2.568
12.000	0.080	0.000	0.012	2.648
12.080	0.080	0.000	0.000	2.728
12.160	0.080	0.000	0.022	2.808
12.240	0.080	0.000	0.000	2.888
12.320	0.080	0.000	0.048	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.163	0.163	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE LI – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

17. ^{88}Y γ-ray 1962.000 keV

^{88}Y nucleus
γ-ray observed 1962.000 keV
γ-ray originates in initial state at 1962.000 keV and goes to final state at 0.000 keV
Initial state is (X) and final state is (X) transition is type (X)
Internal conversion coefficent α is 1.000

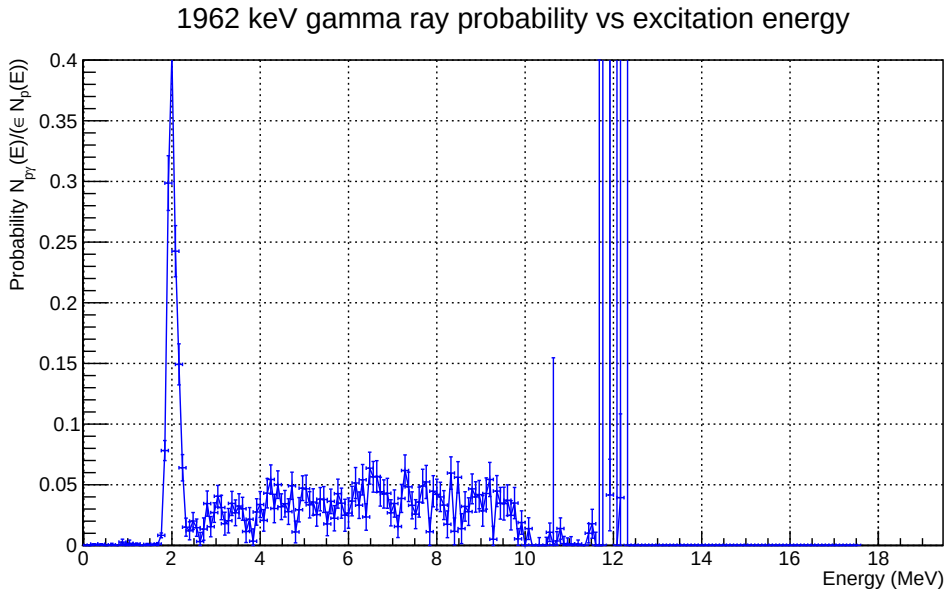

FIG. 70: Gamma ray probability distribution of the 1962.000 keV gamma ray from the ^{89}Y(p,d)^{88}Y reaction.

TABLE LII: ^{89}Y(p,d)^{88}Y probability versus energy for 1962.000 keV gamma ray

E_{exc} (MeV)	E_{unc} (MeV)	P_γ (%)	$P_{\gamma unc}$ (%)	E_{cn} (MeV)
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.001	-9.192
0.240	0.080	0.001	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.001	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.001	-8.712
0.720	0.080	0.000	0.000	-8.632
0.800	0.080	0.000	0.000	-8.552
0.880	0.080	0.003	0.002	-8.472
0.960	0.080	0.000	0.001	-8.392
1.040	0.080	0.002	0.003	-8.312
1.120	0.080	0.000	0.000	-8.232
1.200	0.080	0.001	0.001	-8.152
1.280	0.080	0.000	0.000	-8.072
1.360	0.080	0.000	0.000	-7.992
1.440	0.080	0.001	0.001	-7.912
1.520	0.080	0.000	0.000	-7.832
1.600	0.080	0.001	0.001	-7.752

Continued on next page

TABLE LII – continued from previous page

E_{exc}	E_{unc}	P_{γ}	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.001	0.001	-7.672
1.760	0.080	0.008	0.002	-7.592
1.840	0.080	0.078	0.008	-7.512
1.920	0.080	0.299	0.023	-7.432
2.000	0.080	0.404	0.030	-7.352
2.080	0.080	0.243	0.021	-7.272
2.160	0.080	0.149	0.017	-7.192
2.240	0.080	0.064	0.011	-7.112
2.320	0.080	0.015	0.007	-7.032
2.400	0.080	0.012	0.007	-6.952
2.480	0.080	0.020	0.007	-6.872
2.560	0.080	0.015	0.007	-6.792
2.640	0.080	0.003	0.008	-6.712
2.720	0.080	0.014	0.009	-6.632
2.800	0.080	0.034	0.010	-6.552
2.880	0.080	0.015	0.008	-6.472
2.960	0.080	0.027	0.008	-6.392
3.040	0.080	0.041	0.009	-6.312
3.120	0.080	0.031	0.010	-6.232
3.200	0.080	0.018	0.009	-6.152
3.280	0.080	0.020	0.010	-6.072
3.360	0.080	0.035	0.010	-5.992
3.440	0.080	0.027	0.011	-5.912
3.520	0.080	0.032	0.010	-5.832
3.600	0.080	0.030	0.009	-5.752
3.680	0.080	0.012	0.009	-5.672
3.760	0.080	0.022	0.010	-5.592
3.840	0.080	0.004	0.010	-5.512
3.920	0.080	0.028	0.011	-5.432
4.000	0.080	0.034	0.011	-5.352
4.080	0.080	0.021	0.009	-5.272
4.160	0.080	0.043	0.012	-5.192
4.240	0.080	0.054	0.012	-5.112
4.320	0.080	0.030	0.012	-5.032
4.400	0.080	0.050	0.011	-4.952
4.480	0.080	0.032	0.011	-4.872
4.560	0.080	0.034	0.011	-4.792
4.640	0.080	0.028	0.011	-4.712
4.720	0.080	0.049	0.011	-4.632
4.800	0.080	0.011	0.009	-4.552
4.880	0.080	0.029	0.010	-4.472
4.960	0.080	0.047	0.010	-4.392
5.040	0.080	0.047	0.011	-4.312
5.120	0.080	0.034	0.011	-4.232
5.200	0.080	0.036	0.011	-4.152
5.280	0.080	0.025	0.010	-4.072
5.360	0.080	0.038	0.010	-3.992
5.440	0.080	0.038	0.011	-3.912
5.520	0.080	0.018	0.010	-3.832
5.600	0.080	0.036	0.010	-3.752
5.680	0.080	0.022	0.010	-3.672
5.760	0.080	0.043	0.012	-3.592
5.840	0.080	0.035	0.012	-3.512
5.920	0.080	0.025	0.013	-3.432
6.000	0.080	0.027	0.013	-3.352
6.080	0.080	0.037	0.012	-3.272
6.160	0.080	0.052	0.013	-3.192
6.240	0.080	0.033	0.011	-3.112
6.320	0.080	0.054	0.013	-3.032
6.400	0.080	0.023	0.011	-2.952
6.480	0.080	0.064	0.013	-2.872

Continued on next page

TABLE LII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.057	0.013	-2.792
6.640	0.080	0.057	0.013	-2.712
6.720	0.080	0.044	0.012	-2.632
6.800	0.080	0.042	0.012	-2.552
6.880	0.080	0.043	0.012	-2.472
6.960	0.080	0.027	0.011	-2.392
7.040	0.080	0.034	0.011	-2.312
7.120	0.080	0.016	0.009	-2.232
7.200	0.080	0.039	0.012	-2.152
7.280	0.080	0.062	0.013	-2.072
7.360	0.080	0.048	0.012	-1.992
7.440	0.080	0.033	0.011	-1.912
7.520	0.080	0.026	0.012	-1.832
7.600	0.080	0.036	0.012	-1.752
7.680	0.080	0.049	0.014	-1.672
7.760	0.080	0.052	0.014	-1.592
7.840	0.080	0.011	0.011	-1.512
7.920	0.080	0.045	0.013	-1.432
8.000	0.080	0.042	0.012	-1.352
8.080	0.080	0.040	0.012	-1.272
8.160	0.080	0.033	0.012	-1.192
8.240	0.080	0.017	0.011	-1.112
8.320	0.080	0.060	0.013	-1.032
8.400	0.080	0.012	0.011	-0.952
8.480	0.080	0.056	0.013	-0.872
8.560	0.080	0.014	0.012	-0.792
8.640	0.080	0.032	0.012	-0.712
8.720	0.080	0.028	0.011	-0.632
8.800	0.080	0.047	0.012	-0.552
8.880	0.080	0.040	0.013	-0.472
8.960	0.080	0.042	0.012	-0.392
9.040	0.080	0.029	0.013	-0.312
9.120	0.080	0.043	0.013	-0.232
9.200	0.080	0.054	0.014	-0.152
9.280	0.080	0.005	0.011	-0.072
9.360	0.080	0.045	0.013	0.008
9.440	0.080	0.035	0.013	0.088
9.520	0.080	0.034	0.014	0.168
9.600	0.080	0.037	0.013	0.248
9.680	0.080	0.025	0.012	0.328
9.760	0.080	0.035	0.013	0.408
9.840	0.080	0.005	0.008	0.488
9.920	0.080	0.019	0.010	0.568
10.000	0.080	0.000	0.000	0.648
10.080	0.080	0.014	0.009	0.728
10.160	0.080	0.000	0.000	0.808
10.240	0.080	0.000	0.000	0.888
10.320	0.080	0.000	0.006	0.968
10.400	0.080	0.000	0.000	1.048
10.480	0.080	0.000	0.007	1.128
10.560	0.080	0.011	0.008	1.208
10.640	0.080	0.000	0.155	1.288
10.720	0.080	0.004	0.008	1.368
10.800	0.080	0.014	0.009	1.448
10.880	0.080	0.002	0.006	1.528
10.960	0.080	0.001	0.006	1.608
11.040	0.080	0.001	0.006	1.688
11.120	0.080	0.000	0.000	1.768
11.200	0.080	0.001	0.003	1.848
11.280	0.080	0.000	0.000	1.928
11.360	0.080	0.000	0.000	2.008

Continued on next page

TABLE LII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.010	0.008	2.088
11.520	0.080	0.018	0.012	2.168
11.600	0.080	0.000	0.011	2.248
11.680	0.080	0.000	0.536	2.328
11.760	0.080	0.000	0.000	2.408
11.840	0.080	1083703.250	10600546.000	2.488
11.920	0.080	0.042	0.029	2.568
12.000	0.080	1969551.250	19315902.000	2.648
12.080	0.080	0.000	0.000	2.728
12.160	0.080	0.039	0.069	2.808
12.240	0.080	5097768.000	49995140.000	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.000	0.000	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.000	0.000	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE LII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

18. ^{87}Y γ-ray 793.700 keV

^{87}Y nucleus
γ-ray observed 793.700 keV
γ-ray originates in initial state at 793.730 keV and goes to final state at 0.000 keV
Initial state is 5/2- and final state is 1/2- transition is type E2
Internal conversion coefficent α is 1.002

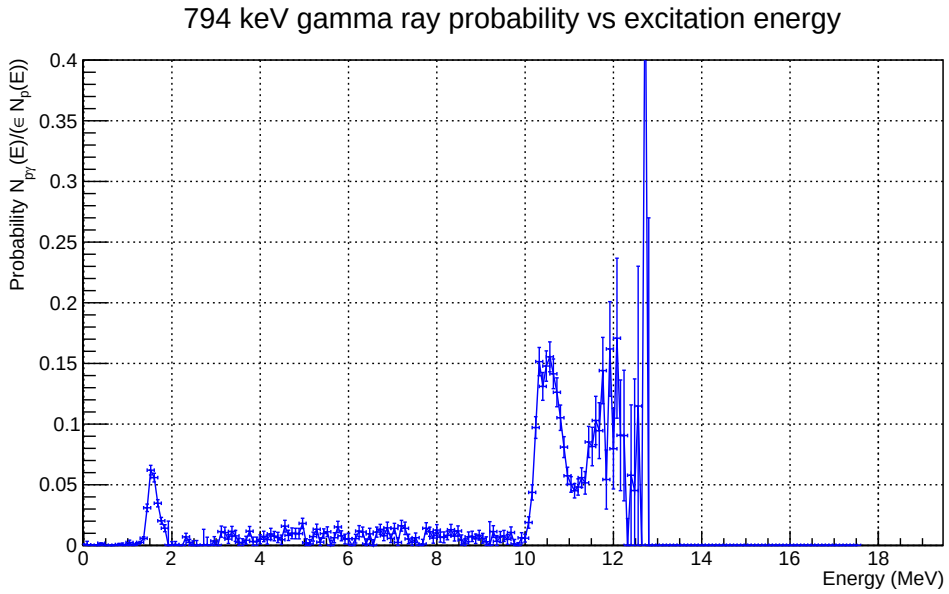

FIG. 71: Gamma ray probability distribution of the 793.700 keV gamma ray from the ^{89}Y(p,dn)^{87}Y reaction.

TABLE LIII: ^{89}Y(p,dn)^{87}Y probability versus energy for 793.700 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.001	0.000	-9.352
0.080	0.080	0.000	0.003	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.000	-9.032
0.400	0.080	0.002	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.000	-8.792
0.640	0.080	0.000	0.000	-8.712
0.720	0.080	0.000	0.000	-8.632
0.800	0.080	0.001	0.001	-8.552
0.880	0.080	0.001	0.001	-8.472
0.960	0.080	0.000	0.000	-8.392
1.040	0.080	0.002	0.002	-8.312
1.120	0.080	0.000	0.000	-8.232
1.200	0.080	0.001	0.001	-8.152
1.280	0.080	0.002	0.001	-8.072
1.360	0.080	0.006	0.001	-7.992
1.440	0.080	0.031	0.003	-7.912
1.520	0.080	0.062	0.004	-7.832
1.600	0.080	0.056	0.004	-7.752

Continued on next page

TABLE LIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.035	0.003	-7.672
1.760	0.080	0.020	0.003	-7.592
1.840	0.080	0.014	0.003	-7.512
1.920	0.080	0.000	0.020	-7.432
2.000	0.080	0.001	0.003	-7.352
2.080	0.080	0.001	0.002	-7.272
2.160	0.080	0.000	0.000	-7.192
2.240	0.080	0.000	0.000	-7.112
2.320	0.080	0.007	0.003	-7.032
2.400	0.080	0.002	0.003	-6.952
2.480	0.080	0.000	0.004	-6.872
2.560	0.080	0.000	0.004	-6.792
2.640	0.080	0.000	0.000	-6.712
2.720	0.080	0.000	0.013	-6.632
2.800	0.080	0.000	0.006	-6.552
2.880	0.080	0.000	0.000	-6.472
2.960	0.080	0.004	0.004	-6.392
3.040	0.080	0.000	0.000	-6.312
3.120	0.080	0.011	0.005	-6.232
3.200	0.080	0.011	0.004	-6.152
3.280	0.080	0.005	0.004	-6.072
3.360	0.080	0.012	0.004	-5.992
3.440	0.080	0.008	0.005	-5.912
3.520	0.080	0.002	0.004	-5.832
3.600	0.080	0.002	0.003	-5.752
3.680	0.080	0.004	0.003	-5.672
3.760	0.080	0.012	0.004	-5.592
3.840	0.080	0.003	0.004	-5.512
3.920	0.080	0.003	0.004	-5.432
4.000	0.080	0.005	0.004	-5.352
4.080	0.080	0.007	0.004	-5.272
4.160	0.080	0.005	0.004	-5.192
4.240	0.080	0.009	0.005	-5.112
4.320	0.080	0.008	0.004	-5.032
4.400	0.080	0.007	0.004	-4.952
4.480	0.080	0.005	0.004	-4.872
4.560	0.080	0.016	0.005	-4.792
4.640	0.080	0.008	0.004	-4.712
4.720	0.080	0.010	0.004	-4.632
4.800	0.080	0.010	0.004	-4.552
4.880	0.080	0.010	0.004	-4.472
4.960	0.080	0.018	0.004	-4.392
5.040	0.080	0.002	0.003	-4.312
5.120	0.080	0.001	0.003	-4.232
5.200	0.080	0.007	0.004	-4.152
5.280	0.080	0.013	0.004	-4.072
5.360	0.080	0.003	0.004	-3.992
5.440	0.080	0.010	0.004	-3.912
5.520	0.080	0.011	0.004	-3.832
5.600	0.080	0.000	0.004	-3.752
5.680	0.080	0.006	0.004	-3.672
5.760	0.080	0.015	0.005	-3.592
5.840	0.080	0.008	0.004	-3.512
5.920	0.080	0.005	0.004	-3.432
6.000	0.080	0.005	0.005	-3.352
6.080	0.080	0.000	0.000	-3.272
6.160	0.080	0.006	0.004	-3.192
6.240	0.080	0.012	0.005	-3.112
6.320	0.080	0.011	0.004	-3.032
6.400	0.080	0.001	0.004	-2.952
6.480	0.080	0.009	0.005	-2.872

Continued on next page

TABLE LIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.000	0.005	-2.792
6.640	0.080	0.011	0.004	-2.712
6.720	0.080	0.013	0.004	-2.632
6.800	0.080	0.008	0.004	-2.552
6.880	0.080	0.014	0.005	-2.472
6.960	0.080	0.006	0.003	-2.392
7.040	0.080	0.014	0.004	-2.312
7.120	0.080	0.002	0.004	-2.232
7.200	0.080	0.016	0.004	-2.152
7.280	0.080	0.014	0.005	-2.072
7.360	0.080	0.005	0.004	-1.992
7.440	0.080	0.002	0.004	-1.912
7.520	0.080	0.006	0.004	-1.832
7.600	0.080	0.000	0.000	-1.752
7.680	0.080	0.001	0.004	-1.672
7.760	0.080	0.014	0.005	-1.592
7.840	0.080	0.011	0.004	-1.512
7.920	0.080	0.006	0.004	-1.432
8.000	0.080	0.013	0.005	-1.352
8.080	0.080	0.007	0.004	-1.272
8.160	0.080	0.007	0.004	-1.192
8.240	0.080	0.008	0.004	-1.112
8.320	0.080	0.013	0.004	-1.032
8.400	0.080	0.008	0.004	-0.952
8.480	0.080	0.012	0.004	-0.872
8.560	0.080	0.004	0.004	-0.792
8.640	0.080	0.002	0.004	-0.712
8.720	0.080	0.007	0.004	-0.632
8.800	0.080	0.007	0.004	-0.552
8.880	0.080	0.005	0.004	-0.472
8.960	0.080	0.008	0.004	-0.392
9.040	0.080	0.006	0.004	-0.312
9.120	0.080	0.003	0.004	-0.232
9.200	0.080	0.000	0.019	-0.152
9.280	0.080	0.011	0.005	-0.072
9.360	0.080	0.003	0.005	0.008
9.440	0.080	0.007	0.005	0.088
9.520	0.080	0.008	0.005	0.168
9.600	0.080	0.005	0.004	0.248
9.680	0.080	0.011	0.005	0.328
9.760	0.080	0.001	0.004	0.408
9.840	0.080	0.000	0.002	0.488
9.920	0.080	0.006	0.004	0.568
10.000	0.080	0.006	0.003	0.648
10.080	0.080	0.019	0.005	0.728
10.160	0.080	0.044	0.006	0.808
10.240	0.080	0.097	0.009	0.888
10.320	0.080	0.152	0.012	0.968
10.400	0.080	0.131	0.011	1.048
10.480	0.080	0.148	0.013	1.128
10.560	0.080	0.155	0.012	1.208
10.640	0.080	0.141	0.012	1.288
10.720	0.080	0.126	0.012	1.368
10.800	0.080	0.105	0.010	1.448
10.880	0.080	0.081	0.009	1.528
10.960	0.080	0.057	0.007	1.608
11.040	0.080	0.050	0.006	1.688
11.120	0.080	0.045	0.006	1.768
11.200	0.080	0.048	0.007	1.848
11.280	0.080	0.056	0.008	1.928
11.360	0.080	0.052	0.009	2.008

Continued on next page

TABLE LIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.085	0.013	2.088
11.520	0.080	0.082	0.016	2.168
11.600	0.080	0.103	0.020	2.248
11.680	0.080	0.095	0.023	2.328
11.760	0.080	0.144	0.027	2.408
11.840	0.080	0.054	0.024	2.488
11.920	0.080	0.162	0.039	2.568
12.000	0.080	0.080	0.033	2.648
12.080	0.080	0.171	0.066	2.728
12.160	0.080	0.091	0.046	2.808
12.240	0.080	0.091	0.054	2.888
12.320	0.080	0.000	0.022	2.968
12.400	0.080	0.058	0.058	3.048
12.480	0.080	0.045	0.092	3.128
12.560	0.080	0.115	0.115	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.497	0.352	3.368
12.800	0.080	0.000	0.270	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

Continued on next page

TABLE LIII – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

19. ^{87}Y γ-ray 982.900 keV

^{87}Y nucleus
γ-ray observed 982.900 keV
γ-ray originates in initial state at 982.900 keV and goes to final state at 0.000 keV
Initial state is 3/2- and final state is 1/2- transition is type M1
Internal conversion coefficent α is 1.001

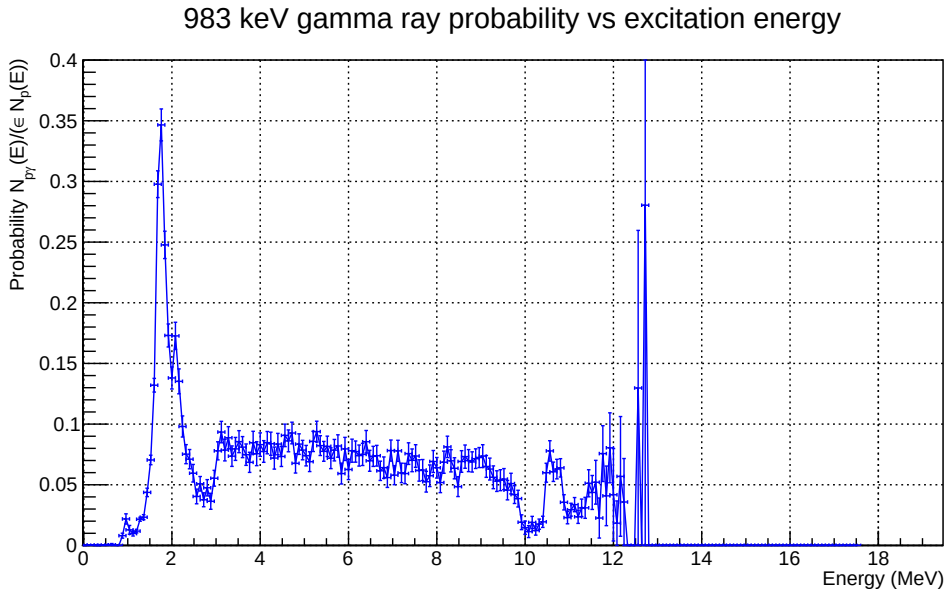

FIG. 72: Gamma ray probability distribution of the 982.900 keV gamma ray from the ^{89}Y(p,dn)^{87}Y reaction.

TABLE LIV: ^{89}Y(p,dn)^{87}Y probability versus energy for 982.900 keV gamma ray

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
0.000	0.080	0.000	0.000	-9.352
0.080	0.080	0.000	0.000	-9.272
0.160	0.080	0.000	0.000	-9.192
0.240	0.080	0.000	0.000	-9.112
0.320	0.080	0.000	0.001	-9.032
0.400	0.080	0.000	0.000	-8.952
0.480	0.080	0.000	0.000	-8.872
0.560	0.080	0.000	0.001	-8.792
0.640	0.080	0.001	0.001	-8.712
0.720	0.080	0.000	0.000	-8.632
0.800	0.080	0.000	0.000	-8.552
0.880	0.080	0.008	0.002	-8.472
0.960	0.080	0.022	0.004	-8.392
1.040	0.080	0.013	0.004	-8.312
1.120	0.080	0.010	0.002	-8.232
1.200	0.080	0.012	0.001	-8.152
1.280	0.080	0.022	0.002	-8.072
1.360	0.080	0.023	0.002	-7.992
1.440	0.080	0.044	0.003	-7.912
1.520	0.080	0.070	0.004	-7.832
1.600	0.080	0.132	0.006	-7.752

Continued on next page

TABLE LIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
1.680	0.080	0.298	0.011	-7.672
1.760	0.080	0.347	0.013	-7.592
1.840	0.080	0.248	0.011	-7.512
1.920	0.080	0.173	0.009	-7.432
2.000	0.080	0.138	0.009	-7.352
2.080	0.080	0.173	0.011	-7.272
2.160	0.080	0.135	0.010	-7.192
2.240	0.080	0.098	0.009	-7.112
2.320	0.080	0.075	0.008	-7.032
2.400	0.080	0.071	0.008	-6.952
2.480	0.080	0.060	0.007	-6.872
2.560	0.080	0.040	0.006	-6.792
2.640	0.080	0.051	0.006	-6.712
2.720	0.080	0.038	0.006	-6.632
2.800	0.080	0.047	0.007	-6.552
2.880	0.080	0.036	0.007	-6.472
2.960	0.080	0.055	0.007	-6.392
3.040	0.080	0.078	0.007	-6.312
3.120	0.080	0.093	0.009	-6.232
3.200	0.080	0.079	0.009	-6.152
3.280	0.080	0.089	0.009	-6.072
3.360	0.080	0.074	0.008	-5.992
3.440	0.080	0.080	0.009	-5.912
3.520	0.080	0.086	0.009	-5.832
3.600	0.080	0.081	0.009	-5.752
3.680	0.080	0.075	0.009	-5.672
3.760	0.080	0.068	0.008	-5.592
3.840	0.080	0.085	0.009	-5.512
3.920	0.080	0.076	0.010	-5.432
4.000	0.080	0.083	0.010	-5.352
4.080	0.080	0.077	0.009	-5.272
4.160	0.080	0.085	0.009	-5.192
4.240	0.080	0.084	0.010	-5.112
4.320	0.080	0.072	0.009	-5.032
4.400	0.080	0.084	0.009	-4.952
4.480	0.080	0.073	0.008	-4.872
4.560	0.080	0.091	0.009	-4.792
4.640	0.080	0.086	0.009	-4.712
4.720	0.080	0.093	0.009	-4.632
4.800	0.080	0.068	0.008	-4.552
4.880	0.080	0.083	0.008	-4.472
4.960	0.080	0.079	0.008	-4.392
5.040	0.080	0.074	0.008	-4.312
5.120	0.080	0.069	0.008	-4.232
5.200	0.080	0.086	0.008	-4.152
5.280	0.080	0.094	0.009	-4.072
5.360	0.080	0.082	0.008	-3.992
5.440	0.080	0.078	0.008	-3.912
5.520	0.080	0.082	0.008	-3.832
5.600	0.080	0.072	0.009	-3.752
5.680	0.080	0.079	0.009	-3.672
5.760	0.080	0.082	0.009	-3.592
5.840	0.080	0.059	0.009	-3.512
5.920	0.080	0.079	0.010	-3.432
6.000	0.080	0.063	0.008	-3.352
6.080	0.080	0.078	0.009	-3.272
6.160	0.080	0.077	0.009	-3.192
6.240	0.080	0.074	0.009	-3.112
6.320	0.080	0.075	0.009	-3.032
6.400	0.080	0.086	0.009	-2.952
6.480	0.080	0.070	0.009	-2.872

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TABLE LIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
6.560	0.080	0.073	0.008	-2.792
6.640	0.080	0.074	0.009	-2.712
6.720	0.080	0.062	0.008	-2.632
6.800	0.080	0.064	0.009	-2.552
6.880	0.080	0.056	0.008	-2.472
6.960	0.080	0.078	0.009	-2.392
7.040	0.080	0.058	0.008	-2.312
7.120	0.080	0.078	0.009	-2.232
7.200	0.080	0.060	0.008	-2.152
7.280	0.080	0.059	0.008	-2.072
7.360	0.080	0.076	0.009	-1.992
7.440	0.080	0.070	0.009	-1.912
7.520	0.080	0.074	0.009	-1.832
7.600	0.080	0.062	0.009	-1.752
7.680	0.080	0.062	0.009	-1.672
7.760	0.080	0.052	0.009	-1.592
7.840	0.080	0.057	0.009	-1.512
7.920	0.080	0.069	0.009	-1.432
8.000	0.080	0.064	0.008	-1.352
8.080	0.080	0.052	0.008	-1.272
8.160	0.080	0.069	0.009	-1.192
8.240	0.080	0.081	0.009	-1.112
8.320	0.080	0.070	0.009	-1.032
8.400	0.080	0.064	0.009	-0.952
8.480	0.080	0.049	0.008	-0.872
8.560	0.080	0.069	0.009	-0.792
8.640	0.080	0.073	0.010	-0.712
8.720	0.080	0.070	0.009	-0.632
8.800	0.080	0.069	0.008	-0.552
8.880	0.080	0.072	0.008	-0.472
8.960	0.080	0.072	0.008	-0.392
9.040	0.080	0.074	0.009	-0.312
9.120	0.080	0.065	0.009	-0.232
9.200	0.080	0.063	0.009	-0.152
9.280	0.080	0.056	0.009	-0.072
9.360	0.080	0.053	0.009	0.008
9.440	0.080	0.054	0.009	0.088
9.520	0.080	0.055	0.009	0.168
9.600	0.080	0.046	0.008	0.248
9.680	0.080	0.051	0.009	0.328
9.760	0.080	0.042	0.007	0.408
9.840	0.080	0.039	0.007	0.488
9.920	0.080	0.019	0.006	0.568
10.000	0.080	0.015	0.005	0.648
10.080	0.080	0.011	0.005	0.728
10.160	0.080	0.019	0.005	0.808
10.240	0.080	0.012	0.004	0.888
10.320	0.080	0.018	0.004	0.968
10.400	0.080	0.020	0.005	1.048
10.480	0.080	0.060	0.008	1.128
10.560	0.080	0.078	0.008	1.208
10.640	0.080	0.061	0.008	1.288
10.720	0.080	0.063	0.008	1.368
10.800	0.080	0.064	0.008	1.448
10.880	0.080	0.036	0.006	1.528
10.960	0.080	0.023	0.005	1.608
11.040	0.080	0.029	0.005	1.688
11.120	0.080	0.034	0.006	1.768
11.200	0.080	0.024	0.005	1.848
11.280	0.080	0.031	0.007	1.928
11.360	0.080	0.031	0.009	2.008

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TABLE LIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
11.440	0.080	0.051	0.011	2.088
11.520	0.080	0.044	0.014	2.168
11.600	0.080	0.052	0.018	2.248
11.680	0.080	0.023	0.016	2.328
11.760	0.080	0.076	0.023	2.408
11.840	0.080	0.041	0.025	2.488
11.920	0.080	0.080	0.029	2.568
12.000	0.080	0.042	0.038	2.648
12.080	0.080	0.018	0.018	2.728
12.160	0.080	0.057	0.049	2.808
12.240	0.080	0.036	0.036	2.888
12.320	0.080	0.000	0.000	2.968
12.400	0.080	0.000	0.000	3.048
12.480	0.080	0.000	0.000	3.128
12.560	0.080	0.130	0.130	3.208
12.640	0.080	0.000	0.000	3.288
12.720	0.080	0.280	0.281	3.368
12.800	0.080	0.000	0.000	3.448
12.880	0.080	0.000	0.000	3.528
12.960	0.080	0.000	0.000	3.608
13.040	0.080	0.000	0.000	3.688
13.120	0.080	0.000	0.000	3.768
13.200	0.080	0.000	0.000	3.848
13.280	0.080	0.000	0.000	3.928
13.360	0.080	0.000	0.000	4.008
13.440	0.080	0.000	0.000	4.088
13.520	0.080	0.000	0.000	4.168
13.600	0.080	0.000	0.000	4.248
13.680	0.080	0.000	0.000	4.328
13.760	0.080	0.000	0.000	4.408
13.840	0.080	0.000	0.000	4.488
13.920	0.080	0.000	0.000	4.568
14.000	0.080	0.000	0.000	4.648
14.080	0.080	0.000	0.000	4.728
14.160	0.080	0.000	0.000	4.808
14.240	0.080	0.000	0.000	4.888
14.320	0.080	0.000	0.000	4.968
14.400	0.080	0.000	0.000	5.048
14.480	0.080	0.000	0.000	5.128
14.560	0.080	0.000	0.000	5.208
14.640	0.080	0.000	0.000	5.288
14.720	0.080	0.000	0.000	5.368
14.800	0.080	0.000	0.000	5.448
14.880	0.080	0.000	0.000	5.528
14.960	0.080	0.000	0.000	5.608
15.040	0.080	0.000	0.000	5.688
15.120	0.080	0.000	0.000	5.768
15.200	0.080	0.000	0.000	5.848
15.280	0.080	0.000	0.000	5.928
15.360	0.080	0.000	0.000	6.008
15.440	0.080	0.000	0.000	6.088
15.520	0.080	0.000	0.000	6.168
15.600	0.080	0.000	0.000	6.248
15.680	0.080	0.000	0.000	6.328
15.760	0.080	0.000	0.000	6.408
15.840	0.080	0.000	0.000	6.488
15.920	0.080	0.000	0.000	6.568
16.000	0.080	0.000	0.000	6.648
16.080	0.080	0.000	0.000	6.728
16.160	0.080	0.000	0.000	6.808
16.240	0.080	0.000	0.000	6.888

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TABLE LIV – continued from previous page

E_{exc}	E_{unc}	P_γ	$P_{\gamma unc}$	E_{cn}
(MeV)	**(MeV)**	**(%)**	**(%)**	**(MeV)**
16.320	0.080	0.000	0.000	6.968
16.400	0.080	0.000	0.000	7.048
16.480	0.080	0.000	0.000	7.128
16.560	0.080	0.000	0.000	7.208
16.640	0.080	0.000	0.000	7.288
16.720	0.080	0.000	0.000	7.368
16.800	0.080	0.000	0.000	7.448
16.880	0.080	0.000	0.000	7.528
16.960	0.080	0.000	0.000	7.608
17.040	0.080	0.000	0.000	7.688
17.120	0.080	0.000	0.000	7.768
17.200	0.080	0.000	0.000	7.848
17.280	0.080	0.000	0.000	7.928
17.360	0.080	0.000	0.000	8.008
17.440	0.080	0.000	0.000	8.088
17.520	0.080	0.000	0.000	8.168
17.520	0.080	0.000	0.000	8.168

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