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Title: Excitation Functions of Products from 208,207,206,natPb and 209B1(P,X) Reactions Measured in the 40-2600 Energy Range and Predicted Theoretically

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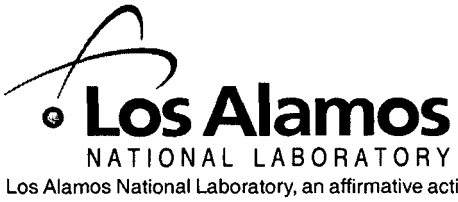

Abstract Submitted to the International Conference on Nuclear Data for Science & Technology (ND2004), September 26 – October 1, 2004, Santa Fe, New Mexico

Excitation Functions of Products from ^{208,207,206,nat}Pb and ^{209}Bi (p,x) Reactions Measured in the 40-2600 Energy Range and Predicted Theoretically

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The excitation functions of independent and cumulative yields of residual products in thin lead and bismuth targets irradiated with protons from 40 MeV to 2.6 GeV measured recently at ITEP, Moscow, are presented and compared with theoretical results by the Los Alamos codes LAHET, CEM2k, and LAQGSM, both last merged with an improved version of the Furihata's Gereralized Evaporation-fission Model (GEM2), with the Liege code INCL merged ABLA evaporation-fission model, with the JINR, Dubna, code CASCADE, and with the phenomenological systematics by Silberberg, Tsao, and Barghouty realized in the code YIELDX.

The predictive power of the tested codes is different but it was found to be satisfactory for most of the nuclides in the spallation region and some fission products, though none of the benchmarked codes agree well with all the data in the whole mass region of product nuclides at all measured energies, and all codes should be improved further. On the whole, the predictive power of all codes for products in the spallation and in the middle of the fission region is better than at the border between spallation and fission and betweeen fission and fragmentation regions; therefore, development of better models for fission and fragmentation is of first priority.

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