

PACKAGE ID - 000200AL00000 BENT CRYSTAL

KWIC TITLE - X-ray Spectrograph Design

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LIMITATION CODE -UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 01/01/1991 **PUBLICATION DATE** - 01/30/1992

DESCRIPTION - BENT CRYSTAL analyzes x-ray spectrographs for which the Bragg diffraction crystal is either flat or circularly bent and for which the film lies in a plane. Only the behavior in a plane is examined. The geometry is specified by either giving the source to crystal and crystal to film plane distances for an x-ray of specified energy, or by giving the coordinates of the source of a point on the film plane and of the center of curvature of the crystal if curved or of a point on it if flat. In both cases, the radius of curvature and film plane azimuth must also be specified. Filters may be placed at the front of the spectrograph or at the film plane. One specifies a set of energies at which the spectrograph geometry is to be solved. Many different quantities are computed, any of which can be plotted against any other. Some of the computed quantities are: the positions on the film, the angles to the film normal, all the lengths and angles including the Bragg angles, the energies and wavelengths, the dispersions, the filter transmissions, crystal reflectivities, source broadening factors, and the spectrograph sensitivities in terms of the film exposures in photons/cm**2 divided by the source brightness. The plots may be saved or printed, their axes made either linear or logarithmic, and grid lines drawn at major or minor guidelines on either axis.

PACKAGE CONTENTS - NESL Note; Software Abstract;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 3 3.5 Diskettes

METHOD OF SOLUTION - BENT CRYSTAL uses files which have the x-ray cross sections from 100 eV to 100 KeV for Z=1 through Z=94.

COMPUTER - APPLE MACINTOSH

OPERATING SYSTEMS - System 4.2 or later

PROGRAMMING LANGUAGES - Absoft FORTRAN/020 V2.4

SOURCE CODE AVAILABLE (Y/N) - Y

RELATED SOFTWARE - The table of spectrograph sensitivities may be saved as a tab-delimited file with titles that can be read either by

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RELATED SOFTWARE - (CONT) CricketGraph or Kaleidagraph.

OTHER PROG/OPER SYS INFO - The Macintosh Plus version runs on all Macintosh computers.

HARDWARE REQS - Apple MacPlus, SE, MacII(x,cx,c).

REFERENCES - BENT CRYSTAL, NESC No. 9402, BENT CRYSTAL Flexible Disk Cartridge Descriptions, National Energy Software Center Note 91-90, August 28, 1991.

ABSTRACT STATUS - Abstract first distributed August 1991. APPLE MACINTOSH versions submitted Febuary 1990, May 1990, and January 1991.

SUBJECT CLASS CODE - QW

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
B CODES
X-RAY SPECTROSCOPY
X-RAY DIFFRACTION
CRYSTALS
FILMS
FILTERS
REFLECTIVITY

EDB SUBJECT CATEGORIES -
990200 665300

SPONSOR - DOE/DP

PACKAGE TYPE - AS - IS