

Proceedings of the Iowa Academy of Science

Volume 40 | Annual Issue

Article 87

1933

A Method Obtaining Absolute Values for X-Ray Energy Levels

John A. Eldridge
State University of Iowa

Copyright ©1933 Iowa Academy of Science, Inc.

Follow this and additional works at: <https://scholarworks.uni.edu/pias>

Recommended Citation

Eldridge, John A. (1933) "A Method Obtaining Absolute Values for X-Ray Energy Levels," *Proceedings of the Iowa Academy of Science*, 40(1), 155-156.

Available at: <https://scholarworks.uni.edu/pias/vol40/iss1/87>

This Research is brought to you for free and open access by the Iowa Academy of Science at UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

optical lever has been designed to allow detection of a change in thickness of the sample of plus or minus twenty Angstrom units. The dilatation is read in terms of the change of interference bands produced between two nearly parallel glass plates. A formula was developed which does away with continuous observation during the expansion. Through the use of this formula the accuracy of the result is comparable with that obtained by continuous observation. The samples do not have to be ground to a specified size, nor do they have to be optically flat. Adjustment of the sample in the apparatus requires about fifteen minutes.

IOWA STATE COLLEGE,
AMES, IOWA.

AN APPARATUS FOR THE DEMONSTRATION OF MALUS LAW, USING THE PHOTRONIC CELL

ROBERT G. WILSON

This apparatus is a further development of that designed by Dr. Weld of Coe College. The principal change is that of using a photronic cell to measure the light intensity.

The apparatus was designed especially for use in advanced optics courses. It can be operated easily by an advanced student and gives very accurate results with a minimum of simple adjustment.

The photronic cell provides a quick, direct method of measuring the light. The student gets an introduction to photo-electricity through its use in the experiment.

The apparatus provides a practical method of demonstrating the action of any kind of polarizer-analyzer combination.

IOWA STATE COLLEGE,
AMES, IOWA.

A METHOD OF OBTAINING ABSOLUTE VALUES FOR X-RAY ENERGY LEVELS

JOHN A. ELDRIDGE

X-ray absorption edges usually correspond to the removal of the orbital electron to some definite outer level, not to complete **ionization**. The difference between this state and the state of com-

plete removal from the metal is not known. It is probably of the order of 25 volts. By measuring the energies of photoelectrons produced by known photons the energy levels can be definitely placed. The experiment suggested is a modification of the one recently described by Kretschman (Phys. Rev. Vol. 43, p. 417).

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

MOSAIC ZINC CRYSTALS

E. P. T. TYNDALL AND H. K. SCHILLING

Crystals of a distinctly mosaic type (that is, a group of polycrystals with almost identical orientations) have been grown with great frequency during the last two years. Some types of these will be described and their bearing on the growth of single crystals by various methods will be discussed.

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

RESISTIVITY OF MOSAIC ZINC CRYSTALS

W. J. POPPY

Zinc mosaics depart from the resistivity-orientation relation characteristics of true single crystals. They show marked rises in resistivity after a strain with a decline to the original, or lower values, on annealing.

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

ELASTICITY OF ZINC CRYSTALS

A. W. HANSON

Improvements have been made in the apparatus for the determination of the elastic constants so that the results on different specimens are in far better agreement than when previously reported (Iowa Academy, 1932). Incomplete tests seem to show that crystals with distinct mosaic structure differ only slightly, if at all, in elastic properties from true single crystals.

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.