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OFFICE OF NAVAL RESEARCH

Contract Nonr 4463(00)

FINAL TECHNICAL REPORT

A Study of X-Ray Absorption Edge Spectroscopy
As a Tool for Solid-State Chemical Research

Armand J. Panson

Westinghouse Research Laboratories
Pittsburgh, Pennsylvania 15235

January 31, 1966

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A STUDY OF X-RAY ABSORPTION EDGE SPECTROSCOPY
AS A TOOL FOR SOLID-STATE CHEMICAL RESEARCH

Contract No. Nonr 4463(00)

Final Technical Report

The following final technical report describes progress made on Contract Nonr 4463(00), "A Study of X-Ray Absorption Edge Spectroscopy as a Tool for Solid-State Chemical Research," for the duration of the contract, February 1, 1964 to January 31, 1966.

PROBLEM STATEMENT

Interpretation of the properties of solids often rests on an assumption concerning valence and bond type of the component atoms. The word "assumption" is used since a direct determination of parameters such as valence is normally not available. We are seeking to evaluate the usefulness of x-ray absorption edge spectroscopy as a research tool to satisfy this need for direct determination of valence, bond type, and coordination.

Our method of attack is to obtain background spectra of atoms in well-defined states in order to allow comparison with spectra obtained on compounds of interest. The compounds to be studied will be those for which we have background measurements, but which still require additional information on valence for a more complete understanding.

Progress made during the two-year course of the contract included:

