

CONTENTS / DECEMBER 1980—VOL. 51, NO. 2

ARGONNE NATIONAL LABORATORY SPECIALISTS' WORKSHOP ON BASIC RESEARCH NEEDS FOR NUCLEAR WASTE MANAGEMENT

- 109 Preface: Argonne National Laboratory Specialists' Workshop on Basic Research Needs for Nuclear Waste Management

TECHNICAL PAPERS

- 111 Basic Research for Evaluating Nuclear Waste Form Performance / *Don J. Bradley*
- 123 The Nature of Glass Leaching / *G. L. McVay, C. Q. Buckwalter*
- 130 Self-Diffusion Processes in Oxide Glasses / *G. H. Frischat*
- 136 X-Ray Photoelectron Spectroscopy Studies of Silicate Glasses: Implications to Bonding and Leaching / *B. W. Veal, D. J. Lam, A. P. Paulikas, D. P. Karim*
- 143 Uranium and Thorium Disequilibrium in Zeolithically Altered Rock / *John N. Rosholt*
- 147 Application of Field-Flow Fractionation to Radioactive Waste Disposal / *Marcus N. Myers, Kathy A. Graff, J. Calvin Giddings*
- 156 Diffusion Coefficients and Their Use / *J. F. Relyea*
- 162 Extended X-Ray Absorption Fine Structure Studies of Actinide Ions in Aqueous Solution / *Douglas P. Karim, P. Georgopoulos, G. S. Knapp*
- 169 Oxidation State Specific Detection of Transuranic Ions in Solution / *James V. Beitz, Jan P. Hessler*
- 178 Possible Applications of the Mössbauer Technique in Waste Management Studies / *S. L. Ruby*
- 182 Rock Alteration and Mineral Transformations for Nuclear Waste Management / *Philip A. Helmke*
- 188 Aspects of Feldspar Dissolution / *P. C. Fung, G. W. Bird, N. S. McIntyre, G. G. Sanipelli, V. J. Lopata*

(Continued)

ON THIS COVER

This month's cover is taken from a figure in the paper by P. C. Fung et al., and pictures scanning electron microscopy micrographs of the surface of microlite grains.

CONTENTS / DECEMBER 1980—VOL. 51, NO. 2

(Continued)

- 197** Stability of Glass in the Geologic Environment: Some Evidence from Studies of Natural Silicate Glasses / *Robert A. Zielinski*
- 201** Summary: Workshop Recommendations—Argonne National Laboratory Specialists' Workshop on Basic Research Needs for Nuclear Waste Management / *A. M. Friedman, D. J. Lam, M. G. Seitz*
-

FUEL CYCLES

- 203** Fuel Cycle Utilizing Plutonium-238 as a "Heat Spike" for Proliferation Resistance / *W. R. Waltz, W. L. Godfrey, A. K. Williams*

FUELS

- 217** Critical Experiments Supporting Close Proximity Water Storage of Power Reactor Fuel / *Gary S. Hoovler, M. Neil Baldwin, Ray L. Eng, Fred G. Welfare*

ISOTOPES SEPARATION

- 238** Cascade Performance for Large Separation Factors / *George Emanuel*

TECHNIQUES

- 244** A New Neutron Detection Technique: Fissile Resistors / *M. Roche, J. Morin, R. Musart, B. Pierre*

DEPARTMENTS

- 103** Authors

- 259** Book Reviews