

Contents

Contributors to Volume 8.....	v
Preface.....	vii
Contents of Previous Volumes.....	xi
Articles Planned for Future Volumes.....	xiii

Electronic Spectra of Molecules and Ions in Crystals

Part I. Molecular Crystals*

DONALD S. McCLURE

I. Introduction.....	1
II. Electronic States of Molecular Crystals.....	2

Photoconductivity in Germanium

R. NEWMAN AND W. W. TYLER

I. Introduction.....	50
II. Electronic Structure of Germanium and Impurities.....	52
III. Photoconductivity Theory.....	56
IV. Preparation and Electrical Properties of Doped Germanium Crystals....	64
V. Experimental Studies of Photoconductivity.....	78
VI. Germanium as an Infrared Detector.....	104
VII. Acknowledgments.....	107

Interaction of Thermal Neutrons with Solids

L. S. KOTHARI AND K. S. SINGWI

I. Introduction.....	110
II. General Theory of Neutron Scattering.....	112
III. Cold Neutron Scattering.....	139
IV. Crystal Dynamics and Inelastic Scattering of Neutrons.....	151
V. Slowing Down of Neutrons near Thermal Equilibrium.....	168
VI. Appendix.....	186

Electronic Processes in Zinc Oxide

G. HEILAND, E. MOLLWO, AND F. STÖCKMANN

I. Introduction.....	193
II. Preparation of Samples.....	196
III. Diffusion of Defects.....	203
IV. Optical Properties.....	216

* Part II will appear in Volume 9 of this series.

V. Adsorption and Catalysis.....	236
VI. Conductivity in Thermal Equilibrium.....	246
VII. The Variation of the Conductivity as a Result of Various Influences.....	273
VIII. Discussion of the Conductivity (Parts VI and VII).....	296

The Structure and Properties of Grain Boundaries

S. AMELINCKX AND W. DEKEYSER

I. Introduction.....	327
II. The Geometry of Grain Boundaries as Arrays of Dislocations.....	329
III. Observations Concerning the Geometry of Grain Boundaries.....	358
IV. Mechanics of Grain Boundaries as Arrays of Dislocations.....	393
V. Energy Measurements.....	420
VI. The Generation of Sub-Boundaries.....	435
VII. Diffusion along Grain Boundaries.....	459
VIII. Segregation and Precipitation of Solutes at Grain Boundaries.....	468
IX. Melting at Grain Boundaries.....	473
X. Boundary Migration.....	476
XI. Electrical Properties of Grain Boundaries.....	491