

Contents

Klaus von Klitzing

The Fine Structure Constant α – A Contribution of Semiconductor Physics to the Determination of α 1

Alexei A. Maradudin

Surface waves 25

Hans Lüth

High Resolution Electron Energy Loss Spectroscopy on Semiconductor Surfaces 117

Angus MacKinnon

Ternary Semiconductors 149

John D. Joannopoulos, Douglas C. Allan

Structure and Electronic States in a-Si:H 167

Peter Vogl

Chemical Trends of Deep Impurity Levels in Covalent Semiconductors 191

Werner Frank

Self-Interstitials and Vacancies in Elemental Semiconductors Between Absolute Zero and the Temperature of Melting 221

Peter H. Dederichs, Rudolf Zeller

Electronic Structure of Impurities in Transition Metals 243

| | |
|--|------------|
| <i>Peter Pfluger, Hans-Joachim Güntherodt</i> Intercalated Graphite: A Synthetic Metal I. Introduction and Electronic Structure | 271 |
| <i>Sigfrid Straeßler, Luciano Pietronero</i> Intercalated Graphite: A Synthetic Metal II. Theory of Bond Length Changes and Conductivity | 313 |
| <i>Wolfgang Dieterich</i> Dynamics of Fast Ion Conductors | 325 |
| <i>Gerd Schön</i> Thermoelectric Effects in Superconductors | 341 |
| <i>Dietmar Fröhlich</i> Aspects of Nonlinear Spectroscopy | 363 |
| <i>Hans J. Schmitt</i> Magnetic Components for Microwaves and Optics | 383 |
| <i>Wilhelm Jutzi</i> Application of Josephson Devices | 403 |