

CONTENTS

A Department and a Research Laboratory in a University, <i>Robert F. Mehl</i>	1
Science-Engineering Coupling and Some Priorities in Materials Research, <i>A. G. Chynoweth</i>	27
STRUCTURE	
Dislocations and Disclinations in Material Structures: The Basic Topological Concepts, <i>E. Kröner and K.-H. Anthony</i>	43
Molecular Organization of Amorphous Polymers, <i>Richard E. Robertson</i>	73
The Structure of Surfaces, <i>M. A. Chesters and G. A. Somorjai</i>	99
PREPARATION, PROCESSING, AND STRUCTURAL CHANGES	
Radiation Curing of Coatings, <i>Siegfried H. Schroeter</i>	115
Solid-State Polymerization, <i>Masanobu Nishii and Koichiro Hayashi</i>	135
Modern Techniques for Powder Metallurgical Fabrication of Low-Alloy and Tool Steels, <i>H. F. Fischmeister</i>	151
Explosion Welding, <i>S. H. Carpenter and R. H. Wittman</i>	177
PROPERTIES AND PHENOMENA	
Electronic Transport in Polycrystalline Films, <i>Richard H. Bube</i>	201
The Metal-Insulator Transition in Selected Oxides, <i>J. M. Honig and L. L. Van Zandt</i>	225
SPECIAL MATERIALS	
Prosthetic Implant Materials, <i>L. L. Hench</i>	279
Semiconducting Compounds of the A ^{II} B ^V Group, <i>W. Żdanowicz and L. Żdanowicz</i>	301
Measurement Compatibility and Standard Reference Materials, <i>J. Paul Cali and Connie L. Stanley</i>	329
Phase Studies in III-IV, II-VI, and IV-VI Compound Semiconductor Alloy Systems, <i>M. Ilegems and G. L. Pearson</i>	345

Glass Fibers for Optical Communications, *William G. French, John B. MacChesney, and A. David Pearson* 373

INDEXES

Author Index	395
Subject Index	407
Cumulative Index of Contributing Authors, Volumes 1–5	415
Cumulative Index of Chapter Titles, Volumes 1–5	416