

CONTENTS

CONTRIBUTORS	vii
PREFACE	ix

Applications of Transmission Electron Microscopy in Mineralogy

P. E. CHAMPNESS

I. Introduction	1
II. Analytical Electron Microscopy of Minerals	2
III. Phase Separation (Exsolution)	6
IV. HRTEM and Defect Structures	27
V. Concluding Remark	33
References	33

High-Resolution Electron Microscopy of Quasicrystals

KENJI HIRAGA

I. Introduction	37
II. Quasiperiodic Lattices	38
III. Experimental Procedures	41
IV. Electron Diffraction of Quasicrystals	42
V. High-Resolution Electron Microscopy Images of Quasicrystals	50
VI. Structure of Icosahedral Quasicrystals	53
VII. Structure of Decagonal Quasicrystals and Their Related Crystalline Phases	66
VIII. Concluding Remarks	96
Acknowledgments	96
References	97

Formal Polynomials for Image Processing

ATSUSHI IMIYA

I. Introduction	99
II. Image Polynomials	101
III. Quotient Fields of Digital Images	113

IV. Image Polynomial and Pyramid 125
 V. Shape Analysis Using Image Polynomials 134
 VI. Concluding Remarks 139
 Acknowledgments 140
 References 140

The Dual de Broglie Wave

MARCIN MOLSKI

I. Introduction 144
 II. Wave-Particle Models of Massive Particles 148
 III. Wave-Particle Models of Photons 161
 IV. Electromagnetic Model of Extended Particles 174
 V. Extended Special Relativity and Quantum Mechanics in a Local
 L-Space 198
 VI. Two-Wave Model of Charged Particles in Kaluza-Klein Space 207
 VII. Extended de Broglie-Bohm Theory 213
 VIII. Infons? 231
 IX. Concluding Remarks 232
 Acknowledgments 234
 References 234

INDEX 240