

CONTENTS

CONTRIBUTORS TO VOLUME 63	vii
PREFACE	ix

Recent Advances in White-Light Image Processing

FRANCIS T. S. YU

I. Introduction	1
II. White-Light Optical Image Processing	3
III. Coherence Requirement	7
IV. Coherence Measurement.	24
V. Source Encoding, Image Sampling and Filtering.	36
VI. Advances in Image Processing	43
VII. Concluding Remarks	68
References	69

A Survey of Recent Advances in the Theory and Practice of Vacuum Photoemitters

H. TIMAN

I. Introduction	73
II. Stability of Photocathodes and the Influence of External and Environmental Conditions	75
III. Physical Properties of PC.	83
IV. Enhancement of Photoemission	99
V. Formation, Composition, and Spectral Response.	106
VI. Theoretical Attempts and Models	119
References	133

Open-Ended Waveguides: Principles and Applications

FRED E. GARDIOL

I. Introduction	140
II. Definitions and Generalities	141
III. Measurements	147
IV. Applications	152
V. Theoretical Development for a Flanged Waveguide Radiating into an Infinite Homogeneous Medium	162
VI. Application to Particular Structures	172

VII. Conclusion	181
Appendix: Infinite Sample in Waveguide	182
References	184

Discrete Mathematical Physics and Particle Modeling

DONALD GREENSPAN

I. Introduction	189
II. Newtonian Mechanics	190
III. Special Relativistic Mechanics.	242
IV. Quantum Mechanics: A Speculative Model of Vibrations in the Water Molecule	259
V. Concluding Remarks.	264
References	266

Contrast Formation in Electron Microscopy of Biological Material

E. CARLEMALM, C. COLLIEX, and E. KELLENBERGER

I. Introduction.	270
II. Theory	276
III. Scattering Cross Sections and Constants.	286
IV. Contrast with Unstained Sections of Aldehyde-Fixed Biological Material	294
V. Experimental Confirmations.	309
VI. Discussion of the Consequences for the Interpretation of Micrographs	319
VII. Discussion of Limitations	327
VIII. Concluding Remarks	331
References	332

AUTHOR INDEX.	335
SUBJECT INDEX.	343