Contents

Series Foreword vii
Preface ix
Contributors xi

1. Atomic Optics
S.M. Tan and D.F. Walls 1

2. Single Atoms in Cavities and Traps
H. Walther 13

3. Meet a Squeezed State and Interfere in Phase Space
D. Krähmer, E. Mayr, K. Vogel and W.P. Schleich 37

4. Can Light Be Localized?
A. Lagendijk 51

5. Time-resolved Laser-induced Breakdown Spectrometry
G. Lupkovics, B. Német and L. Kozma 69

6. Fractal Optics
J. Uozumi and T. Asakura 83

7. On the Spatial Parametric Characterization of General Light Beams
R. Martínez-Herrero and P.M. Mejías 95

8. To See the Unseen: Vision in Scattering Media
E.P. Zege and I.L. Katsev 107

9. Backscattering Through Turbulence
A.S. Gurvich and A.N. Bogaturov 123

10. Why is the Fresnel Transform So Little Known?
F. Gori 139

11. Fourier Curios
A.W. Lohmann 149

12. The Future of Optical Correlators
D. Casasent 163

13. Spectral Hole Burning and Optical Information Processing
K.K. Rebane 177

14. Holographic Storage Revisited
G.T. Sincerbox 195

15. Colour Information in Optical Pattern Recognition
M.J. Yzuel and J. Campos 209

16. The Optics of Confocal Microscopy
C.J.R. Sheppard 225

17. Diffraction Unlimited Optics
A. Lewis 233

18. Super-resolution in Microscopy
V.P. Tychinsky and C.H.F. Velzel 255

19. Fringe Analysis: Anything New?
M. Kujawinska 269

20. Diagnosing the Aberrations of the Hubble Space Telescope
J.R. Fienup 279

21. Laser Beacon Adaptive Optics: Boom or Bust?
R.Q. Fugate 289

Index 305