

Contents

Part I	Nonlinear Optics in Guide Structures	
---------------	---	--

Nonlinear Optical Waveguide Devices		
By H.A. Haus (With 41 Figures)		2
Nonlinear Guided Waves		
By G.I. Stegeman, C.T. Seaton, W.M. Hetherington III, A.D. Boardman, and P. Egan (With 30 Figures)		31
Nonlinear Interactions and Excitonic Effects in Semiconductor Quantum Wells. By D.S. Chemla (With 11 Figures)		65

Part II	Ultrafast Charge Carrier Dynamics in Semiconductors	
----------------	--	--

Femtosecond Lasers and Ultrafast Processes in Semiconductors		
By C.L. Tang (With 7 Figures)		80
Transient Nonlinear Optical Effects in Semiconductors		
By J.L. Oudar (With 6 Figures)		91
Picosecond Luminescence Studies of Electron-Hole Dynamics in Semiconductors. By E.O. Göbel (With 10 Figures)		104

Part III	Nonlinear Optical Materials	
-----------------	------------------------------------	--

Prospect of New Nonlinear Organic Materials		
By G.R. Meredith		116
Photorefractive Materials for Optical Processing		
By J.P. Huignard and G. Roosen (With 10 Figures)		128
Optical Fibres with Organic Crystalline Cores		
By B.K. Nayar (With 5 Figures)		142
Nonlinear Optics at Surfaces and in Composite Materials		
By D. Ricard (With 13 Figures)		154

Part IV	Optical Bistability and Instabilities in Nonlinear Optical Devices	
----------------	---	--

Semiconductor Optical Bistability: Towards the Optical Computer By B.S. Wherrett (With 28 Figures)	180
Optical Bistability and Nonlinearities of the Dielectric Function Due to Biexcitons. By J.B. Grun (With 10 Figures)	222
Instabilities and Chaos in Nonlinear Optical Beam Interactions By C. Flytzanis (With 14 Figures)	231
Index of Contributors	249