Contents

Part I Excimer Lasers	
Excimer Lasers By Ch.A. Brau	3
Coherent Radiation Generation at Short Wavelengths (VUV and XUV Pulses) By D.J. Bradley	9
Dominant Formation and Quenching Processes in E-Beam Pumped ArF [*] and KrF [*] Lasers. By M. Rokni, J.H. Jacob, J.A. Mangano, J. Hsia, and A.M. Hawryluk	19
Electron Beam Controlled, Neon Stabilized XeF Laser. By L.F. Champagne	32
New Visible Laser Transitions in the Mercury Halides. By J.H. Parks	37
High Repetition Rate XeF Laser with Gas Recycling. By C.P. Christensen	45
Simple VUV High Pressure Gas Laser with Coaxial Electron Beam Pumping. By G.L. Oomen and W.J. Witteman	49
Long Pulse Electron Beam Excited XeF Laser. By B. Forestier and B. Fontaine	53
Part II Chemical Lasers	
Electronic Transition Lasers. By S.N. Suchard	59
Activation and Deactivation Rates in High-Power Lasers. By J.I. Steinfeld	66
CW Laser Emission at 3.8 µm and 10.6 µm Based Upon the Chemical Generation of Chlorine Atoms. By S.J. Arnold, K.D. Foster, D.R. Snelling, and R.D. Suart	74
Gas Phase Reactions of Tin and Germanium Atoms. By J.R. Wiesenfeld and M.J. Yuen	78
The Possibility of Laser Pumping via Energy Transfer from or Reactive Collisions with I($^2P_{1/2}$). By P.L. Houston	81

Part III Other Laser Systems	
Ultraviolet Ion Lasers. By J.R. McNeil, R.D. Reid, D.C. Gerstenberger, and G.J. Collins	89
CW Optically Pumped Molecular Iodine Laser. By J.B. Koffend, F.J. Wodarczyk, and R.W. Field	96
Ultraviolet Laser Transitions in I ₂ and Br ₂ . By J. Tellinghuisen	110
Gas Phase and Other New Dye Laser Developments. By F.P. Schäfer	114
Injection-Locked, Unstable Resonator Dye Laser. By I.J. Bigio	116
Short Wavelength Multiline Performance of CW Ion Lasers. By H.R. Lüthi and W. Seelig	119
High Power Iodine Atom Laser. By K. Hohla	124
ASTERIX III, A Terawatt Iodine Laser. By K.J. Witte, G. Brederlow, K. Eidmann, R. Volk, E. Fill, K. Hohla, and R. Brodmann	142
A Simple High Energy TEA CO Laser. By W.E. Schmid	148
Band Width of an Oscillating CO, Laser Transition. By W.J. Witteman and A.H.M. Olbertz	154
Penning Ionization in Doped CO ₂ TEA Lasers. By B.J. Reits	157
Part IV Frequency Conversion	
Nonlinear Processes in the Infrared and Ultraviolet. By C.K. Rhodes	163
Raman Emission at 285 nm from Sn Vapor. By N. Djeu	176
Down Conversion of 351 nm Radiation for Fusion Lasers. By J. Wilson and D. Ehrlich	178
Part V Applications	
Final State Energy Distributions for Exoergic Reactions. By S. Fischer	185
Reactions of Atoms with Vibrationally Excited Molecules. By M. Kneba, K.J. Schmatjko, and J. Wolfrum	195

Carbon Isotope Separation by Multiphoton Dissociation of CF ₃ I By S. Bittenson and P.L. Houston	208
Infrared Laser Dissociation of Tetramethyldioxetane. By Y. Haas and G. Yahav	212
Observation of Tunable-Laser-Induced Grating Dip. By F. Keilmann	215
Study of the Visible Fluorescence of Gaseous UF ₆ . By A. Andreoni, R. Cubeddu, S. De Silvestri, and F. Zaraga	219
List of Participants	223