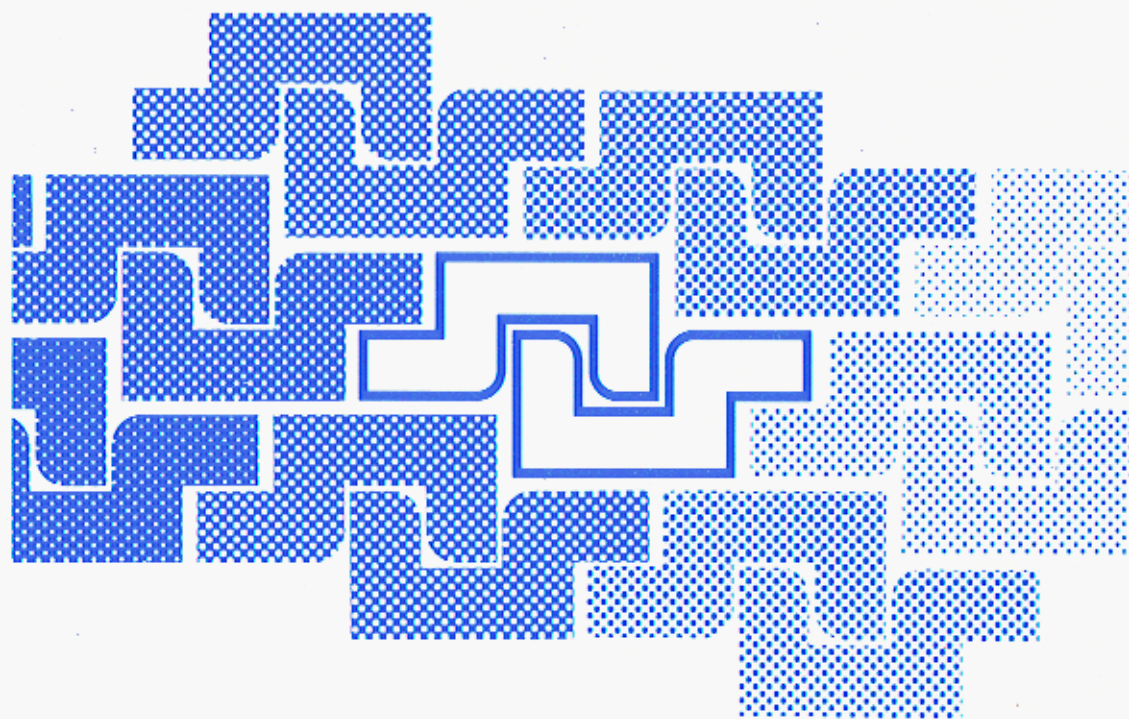




Physics of Laser Crystals

Edited by

Jean-Claude Krupa and Nicolay A. Kulagin

NATO Science Series

PHYSICS OF LASER CRYSTALS

Contents

Preface	vii
Addresses of Participants	ix
1. STRUCTURE AND FUNCTIONAL PROPERTIES OF CRYSTALLINE MATERIALS V. I. Simonov	1
2. UV-VUV LASERS AND FAST SCINTILLATORS J.-C. Krupa, V. N. Makhov	23
3. PERSISTENT LUMINESCENCE MATERIALS T. Aitasalo, J. Hölsä, J.-C. Krupa, M. Lastusaari, J. Niittykoski	35
4. RELAXATION OF MID – IR TRANSITIONS OF Nd^{3+} IN LASER CRYSTALS WITH “SHORT” PHONON SPECTRA T.T. Basiev, Yu.V. Orlovskii, I.N. Vorob'ev, L.N. Dmitruk, T.D. Efimenko, V.N. Skvortsov, V.A. Konyushkin, V.V. Osiko	51
5. GROWTH AND CHARACTERIZATION OF Y-Lu-Gd ALUMINIUM PEROVSKITES J.A. Mares, M. Nikl, K. Blazek, P. Maly, K. Nejezchleb, C. D'Ambrosio, F. De Notaristefani	63
6. WHAT KIND OF INFORMATION IS POSSIBLE TO OBTAIN FROM ^{2S+1}L TERMS OF $4f^N$ CONFIGURATIONS? E. Antic-Fidancev	75
7. LOCATION OF CHARGE-COMPENSATING VACANCY IN IONIC CRYSTALS DOPED WITH RARE EARTH IONS: In case of cubic perovskite KMgF_3 doped with Eu^{2+} Ions. T. Tsuboi	93
8. FLUORESCENCE DYNAMICS OF Er^{3+} IONS IN MBE-GROWN GaN-THIN FILMS F. Pellé, F. Auzel, J.M. Zavada, U. Hömmerich, D.S. Lee, A.J. Steckl	109
9. HETEROGENEOUS DISPERSED SYSTEMS: The new material science approach. V. Koshkin, Yu. Dolzhenko	125

10. ELECTRONIC STRUCTURE OF DOPED AND IRRADIATED WIDE BAND-GAP CRYSTALS N.A. Kulagin	135
11. OVERLAP POLARIZABILITY AND COVALENCY IN DIATOMIC MOLECULES AND EUROPIUM COMPLEXES R.Q. Albuquerque and O.L. Malta	163
12. RED-INFRARED EMISSION OF Tm^{3+} IONS IN YVO_4 AND $LiNbO_3$ CRYSTALS BY MULTI-PHONON EXCITATION WITH HIGH POWER 798 nm LASER DIODE T. Tsuboi, R. Yongfeng, N.A. Kulagin	171
13. VALENCE STATE STABILITY IN $SrTiO_3$ DOPED WITH ME/RE-IONS N.A. Kulagin, J. Dojcilovic, D. Popovic	187
14. OPTICAL TRANSPARENCY OF QUARTZ AND FULLERITE C_{60} AT HIGH POWER INFRARED LASER IRRADIATION I.I. Geru, D.M. Spoiala, I.T. Dihor	201
15. AN OPTIMAL WAY FOR COMPUTATION OF NON-LINEAR OPTICAL PROPERTIES OF CRYSTALS AND LARGE CONJUGATED MOLECULES WITHIN CLUSTER MODELS Yu.F. Pedash, A. Yu. Semenov	219
15 MODIFICATION OF SOLID SURFACE BY A COMPRESSION PLASMA FLOW M.M. Kuraica, V.M. Astashynski, I.P. Dojcinovic, J. Puric	245