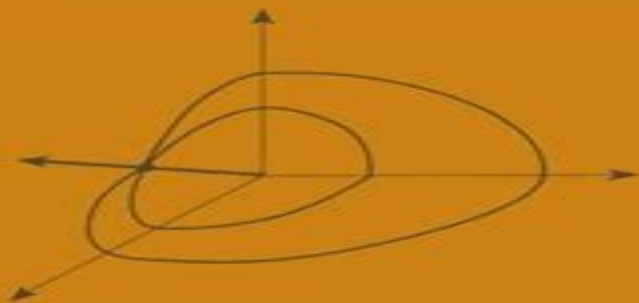


Optical Sciences

V. G. Dmitriev G. G. Gurzadyan
D. N. Nikogosyan

Handbook of Nonlinear Optical Crystals

Second, Revised and Updated Edition



Springer

Handbook Of Nonlinear Optical Crystals

**Valentin G. Dmitriev, Gagik G.
Gurzadyan, David N. Nikogosyan**



Handbook Of Nonlinear Optical Crystals:

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Gurzadyan's name appears first on the Russian original **Handbook of Nonlinear Optical Crystals** Valentin G. Dmitriev, Gagik G. Gurzadyan, David N. Nikogosyan, 2013-04-17 Four years ago when we had finished our work on the first edition of our Handbook we didn't even suppose that three years later it would become necessary to greatly revise and update the material. It happened because of the following developments: 1. The invention and tremendous development of modern nonlinear optical crystals such as BBO, LBO, KTP, ZnGeP₂ etc. 2. Rapid progress in laser techniques: femtosecond CPM laser, Ti:sapphire laser, diode pumped solid state lasers etc. 3. The appearance of numerous organic crystals which can be synthesized with predictable properties. 4. Progress in the theory of nonlinear frequency conversion utilizing biaxial crystals, femtosecond pulses etc. 5. Accumulation of new data on the properties of nonlinear optical crystals. In accordance with the above we have made many changes in the text. The first chapter was revised by D. N. Nikogosyan, the second one by V. G. Dmitriev and D. N. Nikogosyan, and the fourth one by G. G. Gurzadyan. The third chapter containing the main reference material on 77 nonlinear optical crystals was completely rewritten and updated by D. N. Nikogosyan. The Appendix containing the list of most commonly used laser wavelengths was compiled by D. N. Nikogosyan. We would appreciate any valuable comments and recommendations that will allow us to further improve the Handbook. We would like to thank H. K. V. Lotsch for fruitful and long lasting cooperation.

Handbook of Nonlinear Optical Crystals Valentin G. Dmitriev, Gagik G. Gurzadyan, David N. Nikogosyan, 2013-11-11 Since the invention of the first laser 30 years ago the frequency conversion of laser radiation in nonlinear optical crystals has become an important technique widely used in quantum electronics and laser physics for solving various scientific and engineering problems. The fundamental physics of three wave light interactions in nonlinear optical crystals is now well understood. This has enabled the production of various harmonic generators, sum and difference frequency generators and optical parametric oscillators based on nonlinear optical crystals that are now commercially available. At the same time scientists continue an active search for novel highly efficient nonlinear optical materials. Therefore in our opinion there is a great need for a handbook of nonlinear optical crystals intended for specialists and practitioners with an engineering background. This book contains a complete description of the properties and applications of all nonlinear optical crystals of practical importance reported in the literature up to the beginning of 1990. In addition it contains the most important equations for calculating the main parameters such as phase matching, direction, effective nonlinearity and conversion efficiency of nonlinear frequency converters.

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nonlinear frequency converters This comprehensive reference work will be of great value to all scientists and engineers working in nonlinear optics quantum electronics and laser physics Handbook of Nonlinear Optical Crystals Valentin G. Dmitriev, Gagik G. Gurzadyan, David N. Nikogosyan, 2013-11-11 Since the invention of the first laser 30 years ago the frequency conversion of laser radiation in nonlinear optical crystals has become an important technique widely used in quantum electronics and laser physics for solving various scientific and engineering problems The fundamental physics of three wave light interactions in nonlinear optical crystals is now largely understood This has enabled the production of the various harmonic generators sum and difference frequency generators and parametric oscillators based on nonlinear crystals that are now commercially available At the same time scientists continue an active search for novel high efficiency optical materials Therefore in our opinion there is a great need for a handbook of nonlinear optical crystals intended for specialists and practitioners with an engineering background This book contains a complete description of the properties and applications of all nonlinear crystals reported in the literature up to the beginning of 1990 In addition it contains the most important equations for calculating the main parameters such as phase matching direction effective non linearity and conversion efficiency of nonlinear frequency converters Nonlinear Optical Crystals: A Complete Survey David N. Nikogosyan, 2006-03-21 Nonlinear optical techniques are now recognized as the most efficient means available to generate laser radiation at wavelengths that are presently inaccessible via conventional sources This technology uses nonlinear optical crystals for the frequency conversion of laser light The book contains the most complete and up to date reference material on properties of nonlinear optical crystals describes their applications both traditional and specific and provides the main mathematical formulas necessary for the calculation of the frequency conversion process It is a vital source of information for scientists and engineers dealing with modern applications of nonlinear optical crystals in quantum electronics optoelectronics and laser physics **Springer Handbook of Condensed Matter and Materials Data** Werner Martienssen, Hans Warlimont, 2006-09-21 Springer Handbook of Condensed Matter and Materials Data provides a concise compilation of data and functional relationships from the fields of solid state physics and materials in this 1200 page volume The data encapsulated in 914 tables and 1025 illustrations have been selected and extracted primarily from the extensive high quality data collection Landolt B rnstein and also from other systematic data sources and recent publications of physical and technical property data Many chapters are authored by Landolt B rnstein editors including the prominent Springer Handbook editors W Martienssen and H Warlimont themselves The Handbook is designed to be useful as a desktop reference for fast and easy retrieval of essential and reliable data in the lab or office References to more extensive data sources are also provided in the book and by interlinking to the relevant sources on the enclosed CD ROM Physicists chemists and engineers engaged in fields of solid state sciences and materials technologies in research development and application will appreciate the ready access to the key information coherently organized within this wide ranging Handbook From the

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Xin Tao Wu Li Ming Wu Exploration of New Second Order Nonlinear Optical Compounds Containing Main Group Elements

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the field as well as a convenient reference for seasoned professionals *Electronics, Communications and Networks IV* Amir Hussain, Mirjana Ivanovic, 2015-07-01 The 4th International Conference on Electronic Communications and Networks CECNet2014 inherits the fruitfulness of the past three conferences and lays a foundation for the forthcoming next year in Shanghai CECNet2014 was hosted by Hubei University of Science and Technology China with the main objective of providing a comprehensive global forum for experts and participants from academia to exchange ideas and presenting results of ongoing research in the most state of the art areas of Consumer Electronics Technology Communication Engineering and Technology Wireless Communications Engineering and Technology and Computer Engineering and Technology In this event 13 famous scholars and Engineers have delivered the keynote speeches on their latest research including Prof Vijaykrishnan Narayanan a Fellow of the Institute of Electrical and Electronics Engineers Prof Han Chieh Chao the Director of the Computer Center for Ministry of Education Taiwan from September 2008 to July 2010 Prof Borko Furht the founder of the Journal of Multimedia Tools and Applications Prof Kevin Deng who served as Acting Director of Hong Kong APAS R D Center in 2010 and Prof Minh Jo the Professor of Department of Computer and Information Science Korea University **Growth And Characterization Of Some Alkali Metal Doped Urea Thiourea Nlo Crystals** Dr P Saritha, **Pulsed Lasers and Laser Applications** , Digest contains the materials on the research and applications of pulsed lasers Abstracts are interesting for researches and engineers in the field of quantum electronics spectroscopy plasma physics medicine remote sensing and laser technologies Crystallization and Materials Science of Modern Artificial and Natural Crystals Elena Borisenko, 2012-01-20 Crystal growth is an important process which forms the basis for a wide variety of natural phenomena and engineering developments This book provides a unique opportunity for a reader to gain knowledge about various aspects of crystal growth from advanced inorganic materials to inorganic organic composites it unravels some problems of molecular crystallizations and shows advances in growth of pharmaceutical crystals it tells about biomineralization of mollusks and cryoprotection of living cells it gives a chance to learn about statistics of chiral asymmetry in crystal structure *Program Solicitation* , 1998

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