



# Tunable Lasers

**Defense Documentation Center (U.S.).**



## **Tunable Lasers:**

*Tunable Lasers*, 1987      Tunable Laser Optics F.J. Duarte, 2017-12-19 Broadly tunable lasers have had and continue to have an enormous impact in many and diverse fields of science and technology From a renaissance in spectroscopy to laser guide stars and laser cooling the nexus is the tunable laser *Tunable Laser Optics* offers a transparent and comprehensive treatment of the physics of tunable laser optics based on a detailed description of first principles Authored by a leading expert in the field the book covers the optics and optical principles needed to build lasers the optics instrumentation necessary to characterize laser emission and laser based optical instrumentation addressing key topics such as Dirac notation the interferometric equation the uncertainty principle pulse compression and tunable narrow linewidth lasers This revised expanded and improved Second Edition Contains new and additional material on tunable lasers and quantum optics Explains the first principles of tunable laser optics in a clear and concise manner Presents an explicit exposition of the relevant theory without the use of short cuts Employs numerous examples case studies and figures to illustrate important concepts Includes carefully designed problems of direct practical significance to stimulate application Emphasizing the utilitarian aspects of the optics and theory *Tunable Laser Optics* Second Edition provides valuable insight into the optics and the trade offs involved in the design and construction of tunable lasers and optical devices It makes an ideal textbook for advanced undergraduate level and graduate level optics courses for physics and engineering students as well as a handy reference for researchers and experimentalists      **Tunable Laser Applications** Frank Duarte, 1995-08-18 This work details tunable laser applications of broad interest historical significance and potential future value Atomic and molecular spectroscopy interferometry lightening triggering imaging laser radar lidar and gyroscopes are discussed The work focuses on various sources of coherent radiation such as optical parametric oscillators external cavity semiconductors lasers and dye gas CO<sub>2</sub> ultrashort pulse and free electron lasers      Tunable Lasers Jonathan C. White, Linn F. Mollenauer, 2013-03-14 Ever since the invention of the laser itself the spectroscopist has dreamed of lasers that could be tuned continuously over whatever set of resonances he wished to study Two developments of the mid 1960s the optical parametric oscillator and the dye laser were the first to begin to fulfill that dream The cw dye laser with its ability to produce extremely narrow linewidths was particularly successful and revitalized the study of atomic physics Other complementary developments soon followed These included the excimer color center and high pressure gas lasers as well as Raman shifting and four wave mixing techniques for further extending the tuning ranges of such primary tunable laser sources By the end of the 1970s continuously or quasi continuously tunable coherent sources were thus available for the visible and the near infrared and a good part of the ultraviolet and the far infrared Despite the existence of a number of excellent treatises on individual technologies to the best of our knowledge no one has yet attempted to survey the entire field of tunable lasers in a single volume The purpose of this book is to fill that void It is particularly aimed at those who are not necessarily laser experts but who

may wish to discover quickly and with a minimum of effort the best technology to satisfy a particular problem and what the possibilities and limitations of that technology are

**Tunable Lasers Handbook** Frank J. Duarte, 1996-01-08 Many laser applications depend on the ability of a particular laser to be frequency tunable Among the many different types of frequency tunable lasers are dye lasers excimer lasers and semiconductor lasers This book gives active researchers and engineers the practical information they need to choose an appropriate tunable laser for their particular applications Presents a unified and integrated perspective on tunable lasers Includes sources spanning the electromagnetic spectrum from the UV to the FIR Contains 182 figures and 68 tables Provides coverage of optical parametric oscillators and tunable gas liquid solid state and semiconductor lasers

**Tunable External Cavity Diode Lasers** Cunyun Ye, Tjan Kwang Wei, 2004-01-01 Annotation Presents a thorough account of the state of the art of tunable external cavity diode lasers Provides an up to date survey on physics technology and performance of widely applicable coherent radiation sources of tunable external cavity diode lasers May be used as a textbook for related undergraduate and graduate courses

**Laser Materials** Fuxi Gan, 1995 This book focuses mainly on the spectroscopy of laser materials physics of laser materials laser crystals and laser glasses The spectroscopic and laser properties of rare earth and transition metal ion doped solid state materials are systematically described based on modern quantum optics The aim of this book is to relate the laser and spectroscopic properties to the structure and chemical composition of materials It emphasises the nonlinear optical effects in laser materials which are widely used in high power laser systems The development of advanced solid state laser devices depends greatly on new laser materials Much progress has been made recently in the development of new laser materials and this is summarized in the book

**Introduction to Laser Spectroscopy** Halina Abramczyk, 2005-05-06 Introduction to Laser Spectroscopy is a well written easy to read guide to understanding the fundamentals of lasers experimental methods of modern laser spectroscopy and applications It provides a solid grounding in the fundamentals of many aspects of laser physics nonlinear optics and molecular spectroscopy In addition by comprehensively combining theory and experimental techniques it explicates a variety of issues that are essential to understanding broad areas of physical chemical and biological science Topics include key laser types gas solid state and semiconductor as well as the rapidly evolving field of ultrashort laser phenomena for femtochemistry applications The examples used are well researched and clearly presented Introduction to Laser Spectroscopy is strongly recommended to newcomers as well as researchers in physics engineering chemistry and biology A comprehensive course that combines theory and practice Includes a systematic and comprehensive description for key laser types Written for students and professionals looking to gain a thorough understanding of modern laser spectroscopy

**Laser Spectroscopy** Wolfgang Demtröder, 2002-10-08 Keeping abreast of the latest techniques and applications this new edition of the standard reference and graduate text on laser spectroscopy has been completely revised and expanded While the general concept is unchanged the new edition features a broad array of new material e g frequency doubling in external

cavities reliable cw parametric oscillators tunable narrow band UV sources more sensitive detection techniques tunable femtosecond and sub femtosecond lasers X ray region and the attosecond range control of atomic and molecular excitations frequency combs able to synchronize independent femtosecond lasers coherent matter waves and still more applications in chemical analysis medical diagnostics and engineering

*Optical Communications And Networks (With Cd-rom): Proceedings Of The First International Conference On Icocon 2002* Cambyse Guy Omidyar, W D Zhong, Hooshang Ghafouri-shiraz, 2002-10-23 Optical communications networks are becoming increasingly important as there is demand for high capacity links Dense wavelength division multiplexing DWDM is widely deployed at the core networks to accommodate high capacity transport systems Optical components such as optical amplifiers tunable filters transceivers termination devices and add drop multiplexers are becoming more reliable and affordable Access and metropolitan area networks are increasingly built with optical technologies to overcome the electronic bottleneck at network edges New components and subsystems for very high speed optical networks offer new design options The proceedings of the First International Conference on Optical Communications and Networks present high quality recent research results in the areas of optical communications network components architectures protocols planning design management and operation

*Tunable Lasers and Applications* A. Mooradian, T. Jaeger, P. Stokseth, 2013-06-29 The Tunable Lasers and Applications Conference was held in Loen Norway on June 6 11 1976 This conference dealt with the technology of tunable lasers from the vacuum ultraviolet to the far infrared and their application in the areas of photochemistry chemical kinetics isotope separation atmospheric photochemistry and environmental studies photobiology and spectroscopy The need for such a conference grew out of the rapidly expanding use of tunable lasers in a broad range of disciplines The conference was attended by 130 scientists representing Japan Italy West Germany Canada Israel France England Norway Sweden Brazil Denmark Finland the Netherlands the Soviet Union and the United States The location of the conference in Loen Nordfjord was chosen because of the magnificent beauty of its aqua blue fjords surrounded by glacier capped mountains and lush green hillsides The Alexandra Hotel was a perfect host for such a conference with first class services superb smorgesbord and excellent audio visual facilities The atmosphere was free of distractions and provided for a relaxed interchange of ideas An afternoon hike was arranged to the Briksdal glacier while the highlight of the outdoor activities was a bus ship excursion to the majestically splendid Geiranger fjord A sumptuous banquet was followed by an interesting and entertaining illustrated talk on high speed and underwater photography by Professor Harold Edgerton from MIT Financial support from our sponsors is gratefully acknowledged in helping to make this conference a complete success

**DDC Retrieval and Indexing Terminology** Defense Documentation Center (U.S.), 1975

[First International Conference on Optical Communications and Networks \(ICOCON 2002\)](#) Cambyse Guy Omidyar, H. Ghafouri-Shiraz, W. D. Zhong, 2002 Optical communications networks are becoming increasingly important as there is demand for high capacity links Dense wavelength division multiplexing

DWDM is widely deployed at the core networks to accommodate high capacity transport systems Optical components such as optical amplifiers tunable filters transceivers termination devices and add drop multiplexers are becoming more reliable and affordable Access and metropolitan area networks are increasingly built with optical technologies to overcome the electronic bottleneck at network edges New components and subsystems for very high speed optical networks offer new design options The proceedings of the First International Conference on Optical Communications and Networks present high quality recent research results in the areas of optical communications network components architectures protocols planning design management and operation     **An Introductory Guide to EC Competition Law and Practice** Valentine Korah,1994

**Energy Research Abstracts** ,1977 Semiannual with semiannual and annual indexes References to all scientific and technical literature coming from DOE its laboratories energy centers and contractors Includes all works deriving from DOE other related government sponsored information and foreign nonnuclear information Arranged under 39 categories e g Biomedical sciences basic studies Biomedical sciences applied studies Health and safety and Fusion energy Entry gives bibliographical information and abstract Corporate author subject report number indexes     Proceedings of the International Conference on Lasers ,1992     Lasers & Optronics ,1993     **Laser Radar Technology and Applications** Robert C. Harney,National Research Council Canada,1986     *Ultra High Power Lasers for Practicable Applications* Leroy E. Wilson,Society of Photo-optical Instrumentation Engineers,1976     **Active and Passive Optical Components for WDM Communications** ,2003

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