# PRECISION SPECTROSCOPY, DIODE LASERS, AND OPTICAL FREQUENCY MEASUREMENT TECHNOLOGY

Selected Publications of the Optical Frequency Measurement Group of the Time and Frequency Division



Leo Bollberg

Forgotten 23 ooks

Antoine Browaeys, Thierry Lahaye, Trey Porto, Charles S. Adams, Matthias Weidemüller, Leticia F. Cugliandolo

Precision Spectroscopy, Diode Lasers, and Optical Frequency Measurement Technology ,1998 This compilation is a selected set of reprints from the Optical Frequency Measurement Group of the Time and Frequency Division of the National Institute of Standards and Technology and consists of work published between 1987 and 1997 The two main programs represented here are 1 development of tunable diode laser technology for scientific applications and precision measurements and 2 research toward the goal of realizing optical frequency measurements and synthesis The papers are organized chronologically in five somewhat arbitrarily chosen categories Diode Laser Technology Tunable Laser Systems Laser Spectroscopy Optical Synthesis and Extended Wavelength Coverage and Multi Photon Interactions and Optical Precision Spectroscopy, Diode Lasers, and Optical Frequency Measurement Technology Leo Coherences Hollberg, 2017-10-28 Excerpt from Precision Spectroscopy Diode Lasers and Optical Frequency Measurement Technology Selected Publications of the Optical Frequency Measurement Group of the Time and Frequency Division Older publications may be purchased from the National Technical Information Service whose website is or phone 703 487 4650 About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books Find more at www forgottenbooks com This book is a reproduction of an important historical work Forgotten Books uses state of the art technology to digitally reconstruct the work preserving the original format whilst repairing imperfections present in the aged copy In rare cases an imperfection in the original such as a blemish or missing page may be replicated in our edition We do however repair the vast majority of imperfections successfully any imperfections that remain are intentionally left to preserve the state of such historical works Precision Spectroscopy Diode Lasers and Optical Frequency Measurement Technology Leo Hollberg, 1998 This compilation is a selected set of reprints from the Optical Frequency Measurement Group of the Time and Frequency Division of the National Institute of Standards and Technology and consists of work published between 1987 and 1997 The two main programs represented here are 1 development of tunable diode laser technology for scientific applications and precision measurements and 2 research toward the goal of realizing optical frequency measurements and synthesis The papers are organized chronologically in five somewhat arbitrarily chosen categories Diode Laser Technology Tunable Laser Systems Laser Spectroscopy Optical Synthesis and Extended Wavelength Coverage and Multi Photon Interactions and Optical Coherences Precision Spectroscopy, Diode Lasers, and Optical Frequency Measur Leo Hollberg, 2000 A selected set of reprints from the Optical Frequency Measurement Group of the Time and Frequency Div of the Nat Inst of Standards and Technology and consists of work published between 1987 and 1997 The 2 programs represented are 1 development of tunable diode laser technology for scientific applications and precision measurements and 2 research toward the goal of realizing optical frequency measurements and synthesis The papers are organized in 5 categories diode laser technology tunable laser systems laser spectroscopy optical synthesis and extended wavelength

coverage and multi photon interactions and optical coherence PRECISION SPECTROSCOPY, DIODE LASERS, AND OPTICAL FREQUENCY MEASUREMENTS TECHNOLOGY... NIST TECHNICAL NOTE 1504... U.S. DEPARTMENT OF **COMMER.** National Institute of Standards and Technology (U.S.),1998\* **Analytical Techniques for Atmospheric** 

**Measurement** Dwayne Heard, 2008-04-15 Almost all of the breakthroughs in understanding the atmospherehave been initiated by field observations using a range of instrumental techniques Developing or deploying instruments tomake further observations demands a thorough understanding of thechemical and spectroscopic principles on which such measurements depend Written as an authoritative guide to the techniques of instrumental measurement for the atmospheric scientist research student orundergraduate Analytical Techniques for Atmospheric Measurementfocuses on the instruments used to make real time measurements of atmospheric gas and aerosol composition Topics covered include how they work their strengths and weaknesses for a particular task the platforms on which they have been deployed and how they arecalibrated It explains the fundamental principles upon which theinstrumental techniques are based ie what property of a moleculecan be exploited to enable its detection what limits instrumentalsensitivity and accuracy and the information that can be Journal of Research of the National Institute of Standards and Technology, 1998 gainedfrom their use the National Institute of Standards and Technology ... Catalog National Institute of Standards and Technology (U.S.),1985

Faraday Laser Jingbiao Chen, Tiantian Shi, Duo Pan, Zheyi Ge, Jia Zhang, Zijie Liu, Xiaomin Qin, Yaqi Wang, 2025-03-22 This book systematically introduces the basic principles and technologies of Faraday lasers starting from the development history and trends of diode lasers High precision frequency stabilized diode lasers are essential instruments for frontier scientific research They are the core components in the booming fields of quantum precision measurement time frequency communication and atomic physics and are of great significance to economic development and security construction It elaborates on the significant advantages of Faraday lasers based on the Faraday atomic optical filter including their ability to automatically align with atomic transition lines during startup and their resistance to temperature and current disturbances Additionally the book covers the practical applications and significant value of Faraday lasers in devices such as cesium atomic clocks atomic gravimeters and underwater optical communication systems It also explores the future development trends of Faraday lasers This book is suitable for researchers and engineers in the field of frequency stabilized diode lasers and can also be used as a textbook for advanced undergraduate and graduate courses in quantum precision measurement precision spectroscopy and related fields The basis of English translation of this book originally in Chinese was facilitated by artificial intelligence The content was later revised by the authors for accuracy **Monthly Catalog of United States** Handbook of Laser Technology and Applications Colin Webb, Julian D.C. **Government Publications** ,1999 Jones, 2020-09-29 The invention of the laser was one of the towering achievements of the twentieth century At the opening of

the twenty first century we are witnessing the burgeoning of the myriad technical innovations to which that invention has led

The Handbook of Laser Technology and Applications is a practical and long lasting reference source for scientists and engineers who work with lasers The Handbook provides a comprehensive guide to the current status of lasers and laser systems it is accessible to science or engineering graduates needing no more than standard undergraduate knowledge of optics Whilst being a self contained reference work the Handbook provides extensive references to contemporary work and is a basis for studying the professional journal literature on the subject It covers applications through detailed case studies and is therefore well suited to readers who wish to use it to solve specific problems of their own The first of the three volumes comprises an introduction to the basic scientific principles of lasers laser beams and non linear optics. The second volume describes the mechanisms and operating characteristics of specific types of laser including crystalline solid state lasers semiconductor diode lasers fibre lasers gas lasers chemical lasers dye lasers and many others as well as detailing the optical and electronic components which tailor the laser's performance and beam delivery systems. The third volume is devoted to case studies of applications in a wide range of subjects including materials processing optical measurement techniques medicine telecommunications data storage spectroscopy earth sciences and astronomy and plasma fusion research This vast compendium of knowledge on laser science and technology is the work of over 130 international experts many of whom are recognised as the world leaders in their respective fields Whether the reader is engaged in the science technology industrial or medical applications of lasers or is researching the subject as a manager or investor in technical enterprises they cannot fail to be informed and enlightened by the wide range of information the Handbook supplies Frequency Measurement Current Trends in Atomic Physics and Control Andre N. Luiten, 2001-01-25 With contributions by numerous experts Antoine Browaeys, Thierry Lahaye, Trey Porto, Charles S. Adams, Matthias Weidemüller, Leticia F. Cugliandolo, 2019-05-16 This book gathers the lecture notes of courses given at Session CVII of the summer school in physics entitled Current Trends in Atomic Physics and held in July 2016 in Les Houches France Atomic physics provides a paradigm for exploring few body quantum systems with unparalleled control In recent years this ability has been applied in diverse areas including condensed matter physics high energy physics chemistry and ultra fast phenomena as well as foundational aspects of quantum physics This book addresses these topics by presenting developments and current trends via a series of tutorials and lectures presented by international leading investigators Handbook of Laser Technology and Applications: Laser design and laser systems Colin E. Webb, Julian D. C. Jones, 2004 **NBS Special Publication** ,1968 **Publications** United States. National Bureau of Standards, 1976 Publications of the National Bureau of Standards United States. National Bureau of Standards, 1986 Publications of the National Bureau of Standards ... Catalog United States. National Bureau of Recent Advances in Microelectronics Reliability Willem Dirk van Driel, Klaus Pressel, Mujdat Standards, 1975 Soyturk, 2024-07-12 This book describes the latest progress in reliability analysis of microelectronic products The content grows out of an EU project named Intelligent Reliability 4 0 iRel40 see www irel40 eu Different industrial sectors and topics

are covered such as electronics in automotive rail transport lighting and personal appliances Several case studies and examples are discussed which will enable readers to assess and mitigate similar failure cases More importantly this book tries to present methodologies and useful approaches in analyzing a failure and in relating a failure to the reliability of electronic devices **Resident Research Associateships, Postdoctoral and Senior Research Awards** National Research Council (U.S.).,

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