

| | |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 1. Record Nr. | UNINA990002068830403321 |
| Autore | Dade, Harry A. |
| Titolo | The laboratory diagnosis of honey-bee diseases / H.A. Dade |
| Pubbl/distr/stampa | London : Williams & Norgate Ltd., 1949 |
| Descrizione fisica | 19 pp. ; 23 cm |
| Collana | Monographs of the Queckett Microscopical Club ; 4 |
| Disciplina | 638 |
| Locazione | DAGEN |
| Collocazione | 61 XIV D.6/122 |
| Lingua di pubblicazione | Italiano |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| 2. Record Nr. | UNINA9910807769303321 |
| Titolo | Mercury's wings : exploring modes of communication in the classical world / / edited by Fred S. Naiden and Richard J. A. Talbert |
| Pubbl/distr/stampa | New York, NY : , : Oxford University Press, , 2017 |
| ISBN | 0-19-998341-0 0-19-060404-2 |
| Descrizione fisica | 1 online resource (457 pages) : illustrations, tables, maps |
| Disciplina | 302.2/09 |
| Soggetti | Communication - History |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Previously issued in print: 2017. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Sommario/riassunto | 'Mercury's Wings' is a volume of essays devoted to ancient communications. Comparable previous work has been mainly confined |

to articles on aspects of communication in the Roman empire. This set of 18 essays with an introduction by the co-editors marks a milestone, therefore, that demonstrates the importance and rich further potential of the topic.

| | |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Record Nr. | UNINA9910806108203321 |
| Autore | Epperlein Peter W |
| Titolo | Semiconductor laser engineering, reliability and diagnostics : a practical approach to high power and single mode devices / / Peter W. Epperlein |
| Pubbl/distr/stampa | Chichester, West Sussex, U.K., : John Wiley & Sons Inc., 2013 |
| ISBN | 9781118481882 1118481887 9781118481875 1118481879 9781118481868 1118481860 |
| Edizione | [1st edition] |
| Descrizione fisica | 1 online resource (522 p.) |
| Disciplina | 621.36/61 |
| Soggetti | Semiconductor lasers |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Machine generated contents note: Dedication Preface About the Author PART I: DIODE LASER ENGINEERING Overview 1. Basic Diode Laser Engineering Principles Introduction 1.1. Brief Recapitulation 1.1.1. Key Features of a Diode Laser 1.1.2. Homo-Junction Diode Laser 1.1.3. Double-Heterostructure Diode Laser 1.1.4. Quantum Well Diode Laser 1.1.5. Common Compounds for Semiconductor Lasers 1.2. Optical Output Power - Diverse Aspects 1.2.1. Approaches to High Power Diode Lasers 1.2.2. High Optical Power Considerations 1.2.3. Power Limitations 1.2.4. High Power versus Reliability Trade-Offs 1.2.5. Typical and Record-High CW Optical Output Powers 1.3. Selected Relevant Basic Diode Laser Characteristics 1.3.1. Threshold Gain 1.3.2. Material Gain Spectra 1.3.3. Optical Confinement 1.3.4. Threshold |

Current 1.3.5. Transverse Vertical and Transverse Lateral Modes 1.3.6. Fabry-Perot Longitudinal Modes 1.3.7. Operating Characteristics 1.3.8. Mirror Reflectivity Modifications 1.4. Laser Fabrication Technology 1.4.1. Laser Wafer Growth 1.4.2. Laser Wafer Processing 1.4.3. Laser Packaging References 2. Design Considerations for High Power Single Spatial Mode Operation Introduction 2.1. Basic High Power Design Approaches 2.1.1. Key Aspects 2.1.2. Output Power Scaling 2.1.3. Transverse Vertical Waveguides 2.1.4. Narrow Stripe Weakly Index Guided Transverse Lateral Waveguides 2.1.5. Thermal Management 2.1.6. Catastrophic Optical Damage Elimination 2.2. Single Spatial Mode and Kink Control 2.2.1. Key Aspects 2.3.1. Introduction 2.3.2. Selected Calculated Parameter Dependencies 2.3.3. Selected Experimental Parameter Dependencies 2.4.1. Introduction 2.4.2. Broad Area Lasers 2.4.3. Unstable Resonator Lasers 2.4.4. Tapered Amplifier Lasers 2.4.5. Linear Laser Array Structures References Part II: DIODE LASER RELIABILITY Overview 3. Basic Diode Laser Degradation Modes Introduction 3.1. Degradation and Stability Criteria of Critical Diode Laser Characteristics 3.1.1. Optical Power, Threshold, Efficiency and Transverse Modes 3.1.2. Lasing Wavelength and Longitudinal Modes 3.2. Classification of Degradation Modes 3.2.1. Classification of Degradation Phenomena by Location 3.2.2. Basic Degradation Mechanisms 3.3. Key Laser Robustness Factors References 4. Optical Strength Engineering Introduction 4.1. Mirror Facet Properties - Physical Origins of Failure 4.2. Mirror Facet Passivation and Protection 4.2.1. Scope and Effects 4.2.2. Facet Passivation Techniques 4.2.3. Facet Protection Techniques 4.3. Non-Absorbing Mirror Technologies 4.3.1. Concept 4.3.2. Window Grown on Facet 4.3.3. Quantum Well Intermixing Processes 4.3.4. Bent Waveguide 4.4. Further Optical Strength Enhancement Approaches 4.4.1. Current Blocking Mirrors and Material Optimization 4.4.2. Heat Spreader Layer, Device Mounting and Number of Quantum Wells 4.4.3. Mode Spot Widening Techniques References 5. Basic Reliability Engineering Concepts Introduction 5.1. Descriptive Reliability Statistics 5.1.1. Probability Density Function 5.1.2. Cumulative Distribution Function 5.1.3. Reliability Function 5.1.4. Instantaneous Failure Rate or Hazard Rate 5.1.5. Cumulative Hazard Function 5.1.6. Average Failure Rate 5.1.7. Failure Rate Units 5.1.8. Bathtub Failure Rate Curve 5.2. Failure Distribution Functions - Statistics Models for Non-Repairable Populations 5.2.1. Introduction 5.2.2. Lognormal Distribution 5.2.3. Weibull Distribution 5.2.4. Exponential Distribution 5.3. Reliability Data Plotting 5.3.1. Life Test Data Plotting 5.4. Further Reliability Concepts 5.4.1. Data Types 5.4.2. Confidence Limits 5.4.3. Mean Time to Failure Calculations 5.4.4. Reliability Estimations 5.5. Accelerated Reliability Testing - Physics-Statistics Models 5.5.1. Acceleration Relationships 5.5.2. Remarks on Acceleration Models 5.6. System Reliability Calculations 5.6.1. Introduction 5.6.2. Independent Elements Connected in Series 5.6.3. Parallel System of Independent Components References 6. Diode Laser Reliability Engineering Program Introduction 6.1. Reliability Test Plan 6.1.1. Main Purpose, Motivation and Goals 6.1.2. Up-Front Requirements and Activities 6.1.3. Relevant Parameters for Long Term Stability and Reliability 6.1.4. Test Preparations and Operation 6.1.5. Overview Reliability Program Building Blocks 6.1.6. Development Tests 6.1.7. Manufacturing Tests 6.2. Reliability Growth Program 6.3. Reliability Benefits and Costs 6.3.1. Types of Benefit 6.3.2. Reliability - Cost Trade Offs References PART III: DIODE LASER DIAGNOSTICS Overview 7. Novel Diagnostic Laser Data for Active Layer Material Integrity, Impurity Trapping Effects and Mirror Temperatures Introduction 7.1. Optical Integrity of Laser Wafer Substrates 7.1.1.

Motivation 7.1.2. Experimental Details 7.1.3. Discussion of Wafer Photoluminescence Maps 7.2. Integrity of Laser Active Layers 7.2.1. Motivation 7.2.2. Experimental Details 7.2.3. Discussion of Quantum Well PL Spectra 7.3. Deep-Level Defects at Interfaces of Active Regions 7.3.1. Motivation 7.3.2. Experimental Details 7.3.3. Discussion of Deep-Level Transient Spectroscopy Results 7.4. Micro-Raman Spectroscopy for Diode Laser Diagnostics 7.4.1. Motivation 7.4.2. Basics of Raman Inelastic Light Scattering 7.4.3. Experimental Details 7.4.4. Raman on Standard Diode Laser Facets 7.4.5. Raman for Facet Temperature Measurements 7.4.6. Various Dependences of Diode Laser Mirror Temperatures References 8. Novel Diagnostic Laser Data for Mirror Facet Disorder Effects, Mechanical Stress Effects and Facet Coating Instability Introduction 8.1. Diode Laser Mirror Facet Studies by Raman 8.1.1. Motivation 8.1.2. Raman Microprobe Spectra 8.1.3. Possible Origins of the 193 cm⁻¹ Mode in (Al)GaAs 8.1.4. Facet Disorder - Facet Temperature - Catastrophic Optical Mirror Damage Robustness Correlations 8.2. Local Mechanical Strain in Ridge-Waveguide Diode Lasers 8.2.1. Motivation 8.2.2. Measurements - Raman Shifts and Stress Profiles 8.2.3. Detection of "Weak Spots" 8.2.4. Stress Model Experiments 8.3. Diode Laser Mirror Facet Coating Structural Instability 8.3.1. Motivation 8.3.2. Experimental Details 8.3.3. Silicon Recrystallization by Internal Power Exposure 8.3.4. Silicon Recrystallization by External Power Exposure - Control Experiments References 9. Novel Diagnostic Data for Diverse Laser Temperature Effects, Dynamic Laser Degradation Effects and Mirror Temperature Maps Introduction 9.1. Thermoreflectance Microscopy for Diode Laser Diagnostics 9.1.1. Motivation 9.1.2. Concept and Signal Interpretation 9.1.3. Reflectance - Temperature Change Relationship 9.1.4. Experimental Details 9.1.5. Potential Perturbation Effects on Reflectance 9.2. Thermoreflectance versus Optical Spectroscopies 9.2.1. General 9.2.2. Comparison 9.3. Lowest Detectable Temperature Rise 9.4. Diode Laser Mirror Temperatures by Micro-Thermoreflectance 9.4.1. Motivation 9.4.2. Dependence on Number of Active Quantum Wells 9.4.3. Dependence on Heat Spreader 9.4.4. Dependence on Mirror Treatment and Coating 9.4.5. Bent-Waveguide Non-Absorbing Mirror 9.5. Diode Laser Mirror Studies by Micro-Thermoreflectance 9.5.1. Motivation 9.5.2. Real-Time Temperature-Monitored Laser Degradation 9.5.3. Local Optical Probe 9.5.3.1. Threshold and heating distribution within near-field spot 9.6. Diode Laser Cavity Temperatures by Micro-Electroluminescence 9.6.1. Motivation 9.6.2. Experimental Details - Sample and Setup 9.6.3. Temperature Profiles along Laser Cavity 9.7. Diode Laser Facet Temperature - Two-Dimensional Mapping 9.7.1. Motivation 9.7.2. Experimental Concept 9.7.3. First Temperature Maps Ever 9.7.4. Independent Temperature Line Scans Perpendicular Active Layer 9.7.5. Temperature Modelling References Index.

Sommario/riassunto

"This reference book provides a fully integrated novel approach to the development of high power, single transverse mode, edge-emitting diode lasers by addressing the complementary topics of device engineering (Part 1), reliability engineering (Part 2) and device diagnostics (Part 3) in the same book in altogether nine comprehensive chapters, and thus closes the gap in the current book literature. Diode laser fundamentals are discussed, followed by an elaborate discussion of problem-oriented design guidelines and techniques, and by a systematic treatment of the origins of laser degradation and a thorough exploration of the engineering means to address for effective remedies and enhanced optical strength. The discussion covers also stability criteria of critical laser characteristics and key laser robustness factors. Clear design considerations are discussed in the context of reliability

engineering concepts and models, along with typical programs for reliability tests and laser product qualifications. A final extended part of novel, advanced diagnostic methods covers in detail, for the first time in book literature, performance- and reliability-impacting factors such as temperature, stress and material instabilities. Further key features include: Furnishes comprehensive practical design guidelines by considering also reliability related effects and key laser robustness factors, and discusses basic laser fabrication and packaging issues. Discusses in detail diagnostic investigations of diode lasers, the fundamentals of the applied approaches and techniques, many of them pioneered by the author to be fit-for-purpose and novel in the application. Provides a systematic insight into laser degradation modes such as catastrophic optical damage, and covers a wide range of technologies to increase the optical strength of diode lasers. Discusses basic concepts and techniques of laser reliability engineering, and provides for the first time in a book details on a standard commercial program for testing the reliability of high power diode laser. Semiconductor Laser Engineering, Reliability and Diagnostics reflects the extensive expertise of the author in the diode laser field both as a top scientific researcher as well as a key developer of highly reliable devices. It features two hundred figures and tables illustrating numerous aspects of diode laser engineering, fabrication, packaging, reliability, performance, diagnostics and applications, and an extensive list of references to all addressed technical topics at the end of each chapter. With invaluable practical advice, this novel reference book is suited to practising researchers in diode laser technologies, and to postgraduate engineering students. "--
