Mitsubishi Mk 6 Amplified Mobility Platform

Peter W. Epperlein

Mixed Race Hollywood Mary Beltrán, Camilla Fojas, 2008-08 Addresses early mixed-race film characters, Blaxploitation, mixed race in television for children, and the outing of mixed-race stars on the Internet, among other issues and contemporary trends in mixed-race representation. From publisher description.

Wearable Robots José L. Pons, 2008-04-15 A wearable robot is a mechatronic system that is designed around the shape and function of the human body, with segments and joints corresponding to those of the person it is externally coupled with. Teleoperation and power amplification were the first applications, but after recent technological advances the range of application fields has widened. Increasing recognition from the scientific community means that this technology is now employed in telemanipulation, man-amplification, neuromotor control research and rehabilitation, and to assist with impaired human motor control. Logical in structure and original in its global orientation, this volume gives a full overview of wearable robotics, providing the reader with a complete understanding of the key applications and technologies suitable for its development. The main topics are demonstrated through two detailed case studies; one on a lower limb active orthosis for a human leg, and one on a wearable robot that suppresses upper limb tremor. These examples highlight the difficulties and potentialities in this area of technology, illustrating how design decisions should be made based on these. As well as discussing the cognitive interaction between human and robot, this comprehensive text also covers: the mechanics of the wearable robot and it's biomechanical interaction with the user, including state-of-the-art technologies that enable sensory and motor interaction between human (biological) and wearable artificial (mechatronic) systems; the basis for bioinspiration and biomimetism, general rules for the development of biologically-inspired designs, and how these could serve recursively as biological models to explain biological systems; the study on the development of networks for wearable robotics. Wearable Robotics: Biomechatronic Exoskeletons will appeal to lecturers, senior undergraduate students, postgraduates and other researchers of medical, electrical and bio engineering who are interested in the area of assistive robotics. Active system developers in this sector of the engineering industry will also find it an informative and welcome resource.

Dressing for Altitude Dennis R. Jenkins,2012-08-27 Since its earliest days, flight has been about pushing the limits of technology and, in many cases, pushing the limits of human endurance. The human body can be the limiting factor in the design of aircraft and spacecraft. Humans cannot survive unaided at high altitudes. There have been a number of books written on the subject of spacesuits, but the literature on the high-altitude pressure suits is lacking. This volume provides a high-level summary of the technological development and operational use of partial- and full-pressure suits, from the earliest models to the current high altitude, full-pressure suits used for modern aviation, as well as those that were used for launch and entry on the Space Shuttle. The goal of this work is to provide a resource on the technology for suits designed to keep humans alive at the edge of space.--NTRS Web site.

<u>Semiconductor Laser Engineering, Reliability and Diagnostics</u> Peter W. Epperlein, 2013-03-18 This reference book provides a fully integrated novel

approach to the development of high-power, single-transverse mode, edgeemitting diode lasers by addressing the complementary topics of device engineering, reliability engineering and device diagnostics in the same book, and thus closes the gap in the current book literature. Diode laser fundamentals are discussed, followed by an elaborate discussion of problemoriented design guidelines and techniques, and by a systematic treatment of the origins of laser degradation and a thorough exploration of the engineering means to enhance the optical strength of the laser. Stability criteria of critical laser characteristics and key laser robustness factors are discussed along with clear design considerations in the context of reliability engineering approaches and models, and typical programs for reliability tests and laser product qualifications. Novel, advanced diagnostic methods are reviewed to discuss, for the first time in detail in book literature, performance- and reliability-impacting factors such as temperature, stress and material instabilities. Further key features include: practical design guidelines that consider also reliability related effects, key laser robustness factors, basic laser fabrication and packaging issues; detailed discussion of 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; systematic insight into laser degradation modes such as catastrophic optical damage, and a wide range of technologies to increase the optical strength of diode lasers; coverage of basic concepts and techniques of laser reliability engineering with details on a standard commercial high power laser reliability test program. 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 highpower highly reliable devices. With invaluable practical advice, this new reference book is suited to practising researchers in diode laser technologies, and to postgraduate engineering students. Dr. Peter W. Epperlein is Technology Consultant with his own semiconductor technology consulting business Pwe-PhotonicsElectronics-IssueResolution in the UK. He looks back at a thirty years career in cutting edge photonics and electronics industries with focus on emerging technologies, both in global and start-up companies, including IBM, Hewlett-Packard, Agilent Technologies, Philips/NXP, Essient Photonics and IBM/JDSU Laser Enterprise. He holds Pre-Dipl. (B.Sc.), Dipl. Phys. (M.Sc.) and Dr. rer. nat. (Ph.D.) degrees in physics, magna cum laude, from the University of Stuttgart, Germany. Dr. Epperlein is an internationally recognized expert in compound semiconductor and diode laser technologies. He has accomplished R&D in many device areas such as semiconductor lasers, LEDs, optical modulators, quantum well devices, resonant tunneling devices, FETs, and superconducting tunnel junctions and integrated circuits. His pioneering work on sophisticated diagnostic research has led to many world's first reports and has been adopted by other researchers in academia and industry. He authored more than seventy peerreviewed journal papers, published more than ten invention disclosures in the IBM Technical Disclosure Bulletin, has served as reviewer of numerous proposals for publication in technical journals, and has won five IBM Research Division Awards. His key achievements include the design and fabrication of high-power, highly reliable, single mode diode lasers. Book Reviews "Semiconductor Laser Engineering, Reliability and Diagnostics: A

Practical Approach to High Power and Single Mode Devices". By Peter W. Epperlein Prof. em. Dr. Heinz Jäckel, High Speed Electronics and Photonics, Swiss Federal Institute of Technology ETH Zürich, Switzerland The book "Semiconductor Laser Engineering, Reliability and Diagnostics" by Dr. P.W. Epperlein is a landmark in the recent literature on semiconductor lasers because it fills a longstanding gap between many excellent books on laser theory and the complex and challenging endeavor to fabricate these devices reproducibly and reliably in an industrial, real world environment. Having worked myself in the early research and development of high power semiconductor lasers, I appreciate the competent, complete and skillful presentation of these three highly interrelated topics, where small effects have dramatic consequences on the success of a final product, on the ultimate performance and on the stringent reliability requirements, which are the name of the game. As the title suggests the author addresses three tightly interwoven and critical topics of state-of-the-art power laser research. The three parts are: device and mode stability engineering (chapter 1, 2), reliability mechanisms and reliability assessment strategies (chapter 3, 4, 5, 6) and finally material and device diagnostics (chapter 7, 8, 9) all treated with a strong focus on the implementation. This emphasis on the complex practical aspects for a large-scale power laser fabrication is a true highlight of the book. The subtle interplay between laser design, reliability strategies, advanced failure analysis and characterization techniques are elaborated in a very rigorous and scientific way using a very clear and easy to read representation of the complex interrelation of the three major topics. I will abstain from trying to provide a complete account of all the topics but mainly concentrate on the numerous highlights. The first part 1 "Laser Engineering" is divided in two chapters on basic electronic-optical, structural, material and resonator laser engineering on the one side, and on single mode control and stability at very high, still reliable power-levels with the trade-off between mirror damage, single mode stability on the other side. To round up the picture less well-known concepts and the state-of-theart of large-area lasers, which can be forced into single-mode operation, are reviewed carefully. The subtle and complex interplay, which is challenging to optimize for a design for reliability and low stress as a major boundary condition is crucial for the design. The section gives a rather complete and well-referenced account of all relevant aspects, relations and trade-offs for understanding the rest of the book. The completeness of the presentation on power laser diode design based on basic physical and plausible arguments is mainly based on analytic mathematical relations as well as experiments providing a new and well-balanced addition for the power diode laser literature in particular. Modern 2D self-consistent electro-optical laser modeling including carrier hole burning and thermal effects — this is important because the weak optical guiding and gain-discrimination depend critically on rather small quantities and effects, which are difficult to optimize experimentally — is used in the book for simulation results, but is not treated separately. The novel and really original, "gap-filling" bulk of the book is elaborated by the author in a very clear way in the following four chapters in the part 2 "Laser Reliability" on laser degradation physics and mirror design and passivation at high power, followed then by two very application oriented chapters on reliability design engineering and practical reliability strategies and implementation procedures. This original

combination of integral design and reliability aspects — which are mostly neglected in standard literature — is certainly a major plus of this book. I liked this second section as a whole, because it provides excellent insights in degradation physics on a high level and combines it in an interesting and skillful way with the less "glamorous" (unfortunately) but highly relevant reliability science and testing strategies, which is particularly important for devices operating at extreme optical stresses with challenging lifetime requirements in a real word environment. Finally, the last part 3 "Laser Diagnostics" comprising three chapters, is devoted mainly to advanced experimental diagnostics techniques for material integrity, mechanical stress, deep level defects, various dynamic laser degradation effects, surface- and interface quality, and most importantly heating and disordering of mirrors and mirror coatings. The topics of characterization techniques comprising micro-Raman- and micro-thermoreflectance-probing, 2K photoluminescence spectroscopy, micro-electroluminescence and photoluminescence scanning, and deep-level-transient spectroscopy have been pioneered by the author for the specific applications over many years guaranteeing many competent and well represented insights. These techniques are brilliantly discussed and the information distributed in many articles by the author has been successfully unified in a book form. In my personal judgment and liking, I consider the parts 2 and 3 on reliability and diagnostics as the most valuable and true novel contribution of the book, which in combination with the extremely well-covered laser design of part 1 clearly fill the gap in the current diode laser literature, which in this detail has certainly been neglected in the past. In summary, I can highly recommend this excellent, well-organized and clearly written book to readers who are already familiar with basic diode laser theory and who are active in the academic and industrial fabrication and characterization of semiconductor lasers. Due to its completeness, it also serves as an excellent reference of the current state-of-the-art in reliability engineering and device and material diagnostics. Needless to mention that the quality of the book, its representations and methodical structure meet the highest expectation and are certainly a tribute from the long and broad experience of the author in academic laser science and the industrial commercialization of high power diode lasers. In my opinion, this book was a pleasure to read and due to its quality and relevance deserves a large audience in the power diode laser community! Prof. em. Dr. Heinz Jäckel, High Speed Electronics and Photonics, Swiss Federal Institute of Technology ETH Zürich, Switzerland June 16, 2013 Reliability and Diagnostics: A Practical Approach to High Power and Single Mode Devices". By Peter W. Epperlein Dr. Chung-en Zah, Research Director, Semiconductor Technologies Research, S&T Division, Corning Incorporate, Corning NY, USA This book covers for the first time the three closely interrelated key laser areas of engineering (design), reliability and diagnostics in one book, written by the well-known practitioner in cuttingedge optoelectronics industries, Dr. Peter W. Epperlein. The book closes the gap in the current book literature and is thus a unique and excellent example of how to merge design, reliability and diagnostics aspects in a very professional, profound and complete manner. All physical and technological principles, concepts and practical aspects required for developing and fabricating highly-reliable high-power single-mode laser products are

precisely specified and skilfully formulated along with all the necessary equations, figures, tables and worked-out examples making it easy to follow through the nine chapters. Hence, this unique book is a milestone in the diode laser literature and is an excellent reference book not only for diode laser researchers and engineers, but also diode laser users. The engineering part starts with a very informative and clear, well-presented account of all necessary basic diode laser types, principles, parameters and characteristics for an easy and quick understanding of laser functionality within the context of the book. Along with an elaborate and broad discussion of relevant laser material systems, applications, typical output powers, power-limiting factors and reliability tradeoffs, basic fabrication and packaging technologies, this excellent introductory section is well suited to become quickly and easily familiar with practical aspects and issues of diode laser technologies. Of special importance and high usefulness is the first analytic and quantitative discussion in a book on issues of coupling laser power into optical single mode fibers. The second section discusses in a well-balanced, competent and skilful way waveguide topics such as basic high-power design approaches, transverse vertical and lateral waveguide concepts, stability of the fundamental transverse lateral mode and fundamental mode waveguide optimization techniques by considering detrimental effects such as heating, carrier injection, spatial hole burning, lateral current spreading and gain profile variations. Less well-known approaches to force large-area lasers into a single mode operation are well-identified and carefully discussed in depth and breadth. All these topics are elaborated in a very complete, rigorous and scientific way and are clearly articulated and easy to read. In particular, the book works out the complex interaction between the many different effects to optimize high-power single-mode performance at ultimate reliability and thus is of great benefit to every researcher and engineer engaged in this diode laser field. Another novelty and highlight is, for the first time ever in book form, a comprehensive yet concise discussion of diode laser reliability related issues. These are elaborated in four distinct chapters comprising laser degradation physics and modes, optical strength enhancement approaches including mirror passivation/coating and non-absorbing mirror technologies, followed by two highly relevant product-oriented chapters on reliability design engineering concepts and techniques and an elaborate reliability test plan for laser chip and module product qualification. This original and novel approach to link laser design to reliability aspects and requirements provides both, most useful insight into degradation processes such as catastrophic optical mirror damage on a microscopic scale, and a wide selection of effective remedial actions. These accounts, which are of highest significance for lasers operating at the optical stress limit due to extremely high output power densities and most demanding lifetime requirements are very professionally prepared and discussed in an interesting, coherent and skilful manner. The diagnostics part, consisting of three very elaborate chapters, is most unique and novel with respect to other diode laser books. It discusses for the first time ever on a very high level and in a competent way studies on material integrity, impurity trapping effects, mirror and cavity temperatures, surface- and interface quality, mirror facet disorder effects, mechanical stress and facet coating instability, and diverse laser temperature effects, dynamic laser degradation effects and mirror temperature maps. Of highest significance to

between laser device and material parameters. The most different and sophisticated experiments, carried out by the author at micrometer spatial resolutions and at temperatures as low as 2K, provide highly valuable insights into laser and material quality parameters, and reveal for the first time the origins of high power limitations on an atomic scale due to local heating effects and deep level defects. It is of great benefit, that the experimental techniques such as Raman spectroscopy, various luminescence techniques, thermoreflectance and deep-level transient spectroscopy, pioneered by the author for the specific experiments on lasers, are discussed with great expertise in depth and breadth, and the numerous paper articles published by the author are now represented in this book. The book has an elaborate table of contents and index, which are very useful, over 200 illustrative figures and tables, and extensive lists of references to all technical topics at the end of each of the nine chapters, which make it easy to follow from cover to cover or by jumping in at random areas of special interest. Moreover, experimental and theoretical concepts are always illustrated by practical examples and data. I can highly recommend this extremely relevant, well-structured and well-formulated book to all practising researchers in industrial and academic diode laser R&D environments and to post-graduate engineering students interested in the actual problems of designing, manufacturing, testing, characterising and qualifying diode lasers. Due to its completeness and novel approach to combine design, reliability and diagnostics in the same book, it can serve as an ideal reference book as well, and it deserves to be welcomed wordwide by the addressed audience. Dr. Chung-en Zah, Research Director, Semiconductor Technologies Research, S&T Division, Corning Incorporate, Corning NY, USA Reliability and Diagnostics: A Practical Approach to High Power and Single Mode Devices". By Peter W. Epperlein Cordinatore Prof. Lorenzo Pavesi, UNIVERSITÀ DEGLI STUDI DI TRENTO, Dipartimento di Fisica / Laboratorio di Nanoscienze This book represents a well thought description of three fundamental aspects of laser technology: the functioning principles, the reliability and the diagnostics. From this point of view, and, as far as I know, this is a unique example of a book where all these aspects are merged together resulting in a well-balanced presentation. This helps the reader to move with ease between different concepts since they are presented in a coherent manner and with the same terminology, symbols and definitions. The book reads well. Despite the subtitle indicates that it is a practical approach, the book is also correct from a formal point of view and presents the necessary equations and derivations to understand both the physical mechanisms and the practicalities via a set of useful formulas. In addition, there is the more important aspect of many real-life examples of how a laser is actually manufactured and which the relevant parameters that determine its behaviour are. It impresses the amounts of information that are given in the book: this would be more typical of a thick handbook on semiconductor laser than of an agile book. Dr. Epperlein was able to identify the most important concepts and to present them in a clear though concise way. I am teaching a course on Optoelectronics and I'm going to advise students to refer to this book, because it has all the necessary concepts and derivations for a systematic understanding of semiconductor lasers with many worked-out

design, performance and reliability are the various correlations established

examples, which will help the student to grasp the actual problems of designing, manufacturing, testing and using semiconductor lasers. All the various concepts are joined to very useful figures, which, if provided to instructors as files, can be a useful add-on for the use of the book as text for teaching. Concepts are always detailed with numbers to give a feeling of their practical use. In conclusion, I do find the book suitable for my teaching duties and will refer it to my students. Prof. Dr. Lorenzo Pavesi, Head of the Department of Physics, Head of the Nanoscience Laboratory, University of Trento, Italy 31 May 2013

Reliability and Diagnostics: A Practical Approach to High Power and Single Mode Devices". By Peter W. Epperlein Robert W. Herrick, Ph.D., Senior Component Reliability Engineer, Intel Corp., Santa Clara, California, USA Dr. Epperlein has done the semiconductor laser community a great service, by releasing the most complete book on the market on the practical issues of how to make reliable semiconductor lasers. While dozens of books have been written over the past couple of decades on semiconductor laser design, only a handful have been written on semiconductor laser reliability. Prior to the release of this book, perhaps 40% of the material could be obtained elsewhere by combining five books: one on laser design, one on laser reliability, one on reliability calculations, and a couple of laser review books. Another 40% could be pieced together by collecting 50 -100 papers on the subjects of laser design, laser fabrication, characterization, and reliability. The remaining 20% have not previously been covered in any comprehensive way. Only the introductory material in the first half of the first chapter has good coverage elsewhere. The large majority of the knowledge in this book is generally held as "trade secret" by those with the expertise in the field, and most of those in the know are not free to discuss. The author was fortunate enough to work for the first half of his career in the IBM research labs, with access to unparalleled resources, and the ability to publish his work without trade secret restrictions. The results are still at the cutting edge of our understanding of semiconductor laser reliability today, and go well beyond the empirical "black box" approach many use of "try everything, and see what works." The author did a fine job of pulling together material from many disparate fields. Dr. Epperlein has particular expertise in high power single mode semiconductor lasers, and those working on those type of lasers will be especially interested in this book, as there has never been a book published on the fabrication and qualification of such lasers before. But those in almost any field of semiconductor lasers will learn items of interest about device design, fabrication, reliability, and characterization. Unlike most other books, which intend to convey the scientific findings or past work of the author, this one is written more as a "how to" manual, which should make it more accessible and useful to development engineers and researchers in the field. It also has over 200 figures, which make it easier to follow. As with many books of this type, it is not necessary to read it from cover-to-cover; it is best skimmed, with deep diving into any areas of special interest to the reader. The book is remarkable also for how comprehensive it is — even experts will discover something new and useful. Dr. Epperlein's book is an essential read for anyone looking to develop semiconductor lasers for anything other than pure research use, and I give it my highest recommendation. Robert W. Herrick, Ph.D., Senior Component

Reliability Engineer, Intel Corp., Santa Clara, California, USA Project Management Harold Kerzner, 2013-01-22 A new edition of the most popular book of project management case studies, expanded to include more than 100 cases plus a super case on the Iridium Project Case studies are an important part of project management education and training. This Fourth Edition of Harold Kerzner's Project Management Case Studies features a number of new cases covering value measurement in project management. Also included is the well-received super case, which covers all aspects of project management and may be used as a capstone for a course. This new edition: Contains 100-plus case studies drawn from real companies to illustrate both successful and poor implementation of project management Represents a wide range of industries, including medical and pharmaceutical, aerospace, manufacturing, automotive, finance and banking, and telecommunications Covers cutting-edge areas of construction and international project management plus a super case on the Iridium Project, covering all aspects of project management Follows and supports preparation for the Project Management Professional (PMP®) Certification Exam Project Management Case Studies, Fourth Edition is a valuable resource for students, as well as practicing engineers and managers, and can be used on its own or with the new Eleventh Edition of Harold Kerzner's landmark reference, Project Management: A Systems Approach to Planning, Scheduling, and Controlling. (PMP and Project Management Professional are registered marks of the Project Management Institute, Inc.)

Modelling and Control of Switched Reluctance Machines Rui Araújo, José Camacho, 2020-09-09 Today, switched reluctance machines (SRMs) play an increasingly important role in various sectors due to advantages such as robustness, simplicity of construction, low cost, insensitivity to high temperatures, and high fault tolerance. They are frequently used in fields such as aeronautics, electric and hybrid vehicles, and wind power generation. This book is a comprehensive resource on the design, modeling, and control of SRMs with methods that demonstrate their good performance as motors and generators.

Hindsight, Insight, Foresight: Thinking About Security in the Indo-Pacific Alexander L. Vuving, 2020-09-30 Hindsight, Insight, Foresight is a tour d'horizon of security issues in the Indo-Pacific. Written by 20 current and former members of the faculty at the Daniel K. Inouye Asia-Pacific Center for Security Studies, its 21 chapters provide hindsight, insight, and foresight on numerous aspects of security in the region. This book will help readers to understand the big picture, grasp the changing faces, and comprehend the local dynamics of regional security.

<u>Phosphorus: Polluter and Resource of the Future</u> Christian Schaum, 2018-03-15 This comprehensive book provides an up-to-date and international approach that addresses the Motivations, Technologies and Assessment of the Elimination and Recovery of Phosphorus from Wastewater. This book is part of the Integrated Environmental Technology Series.

<u>Handbook of Intercultural Communication and Cooperation</u> Alexander Thomas, Eva-Ulrike Kinast, Sylvia Schroll-Machl, 2010-09-15 This handbook provides an overall strategic concept for interculturality.

Small Satellites for Earth Observation Rainer Sandau, Hans-Peter Roeser, Arnoldo Valenzuela, 2008-04-18 The 6th IAA Symposium on Small Satellites for Earth Observation, initiated by the International Academy of

Astronautics (IAA), was again hosted by DLR, the German Aerospace Center. The participation of scientists, engineers, and managers from 24 countries reflected the high interest in the use of small satellites for dedicated missions applied to Earth observation. The contributions showed that dedicated Earth observation missions cover a wide range of very different tasks.

Turing Evolved David Kitson, 2014-10-01 BLADE RUNNER meets THE MATRIX in this gripping thriller with an incredible twist. When ex-demon pilot Jon Carlson meets beautiful humanitarian Rachel, it's a match made in heaven. Literally, because Rachel's an angel. She's also an AI controlled android of immense power and capability. As Jon finds himself drawn into the world of these enigmatic creations of mankind, he unknowingly becomes involved in a program to create autonomous superweapons intended to fight the next war.

Biologically Inspired Robotics Yunhui Liu, Dong Sun, 2011-12-21 Robotic engineering inspired by biology-biomimetics-has many potential applications: robot snakes can be used for rescue operations in disasters, snake-like endoscopes can be used in medical diagnosis, and artificial muscles can replace damaged muscles to recover the motor functions of human limbs. Conversely, the application of robotics technology to our understanding of biological systems and behaviors—biorobotic modeling and analysis—provides unique research opportunities: robotic manipulation technology with optical tweezers can be used to study the cell mechanics of human red blood cells, a surface electromyography sensing system can help us identify the relation between muscle forces and hand movements, and mathematical models of brain circuitry may help us understand how the cerebellum achieves movement control. Biologically Inspired Robotics contains cutting-edge material-considerably expanded and with additional analysis-from the 2009 IEEE International Conference on Robotics and Biomimetics (ROBIO). These 16 chapters cover both biomimetics and biorobotic modeling/analysis, taking readers through an exploration of biologically inspired robot design and control, micro/nano bio-robotic systems, biological measurement and actuation, and applications of robotics technology to biological problems. Contributors examine a wide range of topics, including: A method for controlling the motion of a robotic snake The design of a bionic fitness cycle inspired by the jaguar The use of autonomous robotic fish to detect pollution A noninvasive brain-activity scanning method using a hybrid sensor A rehabilitation system for recovering motor function in human hands after injury Human-like robotic eye and head movements in human-machine interactions A state-of-the-art resource for graduate students and researchers in the fields of control engineering, robotics, and biomedical engineering, this text helps readers understand the technology and principles in this emerging field.

<u>Postharvest Handling</u> Wojciech J. Florkowski, Stanley E. Prussia, Robert L. Shewfelt, Bernhard Brueckner, 2009-02-21 Consideration of the interactions between decisions made at one point in the supply chain and its effects on the subsequent stages is the core concept of a systems approach. Postharvest Handling is unique in its application of this systems approach to the handling of fruits and vegetables, exploring multiple aspects of this important process through chapters written by experts from a variety of backgrounds. Newly updated and revised, this second edition includes coverage of the logistics of fresh produce from multiple perspectives, postharvest

handing under varying weather conditions, quality control, changes in consumer eating habits and other factors key to successful postharvest handling. The ideal book for understanding the economic as well as physical impacts of postharvest handling decisions. Key Features: *Features contributions from leading experts providing a variety of perspectives *Updated with 12 new chapters *Focuses on application-based information for practical implementation *System approach is unique in the handling of fruits and vegetables

The Spread of Modern Industry to the Periphery Since 1871 Kevin H. O'Rourke, Jeffrey G. Williamson, 2017 This is an open access title available under the terms of a CC BY-NC-ND 4.0 International licence. It is free to read at Oxford Scholarship Online and offered as a free PDF download from OUP and selected open access locations. Ever since the Industrial Revolution of the late-eighteenth and early-nineteenth centuries, industrialization has been the key to modern economic growth. The fact that modern industry originated in Britain, and spread initially to north-western Europe and North America, implied a dramatic divergence in living standards between the industrial North (or West) and a non-industrial, or even de-industrializing, South (or Rest). This nineteenth-century divergence, which had profound economic, military, and geopolitical implications, has been studied in great detail by many economists and historians. Today, this divergence between the West and the Rest is visibly unraveling, as economies in Asia, Latin America and even sub-Saharan Africa converge on the rich economies of Europe and North America. This phenomenon, which is set to define the twenty-first century, both economically and politically, has also been the subject of a considerable amount of research. Less appreciated, however, are the deep historical roots of this convergence process, and in particular of the spread of modern industry to the global periphery. This volume fills this gap by providing a systematic, comparative, historical account of the spread of modern manufacturing beyond its traditional heartland, to Southern and Eastern Europe, the Middle East, Asia, Africa, and Latin America, or what we call the poor periphery. It identifies the timing of this convergence, finding that this was fastest in the interwar and post-World War II years, not the more recent miracle growth years. It also identifies which driving forces were common to all periphery countries, and which were not.

Trends in Intelligent Robotics, Automation, and Manufacturing S.G. Poonambalam, Jussi Parkkinen, Kuppan Chetty Ramanathan, 2012-11-28 This book constitutes the proceedings of the First International Conference on Intelligent Robotics and Manufacturing, IRAM 2012, held in Kuala Lumpur, Malaysia, in November 2012. The 64 revised full papers included in this volume were carefully reviewed and selected from 102 initial submissions. The papers are organized in topical sections named: mobile robots, intelligent autonomous systems, robot vision and robust, autonomous agents, micro, meso and nano-scale automation and assembly, flexible manufacturing systems, CIM and micro-machining, and fabrication techniques.

Sol-Gel Technologies for Glass Producers and Users Michel Andre Aegerter, M. Mennig, 2013-03-19 Sol-Gel Techniques for Glass Producers and Users provides technological information, descriptions and characterizations of prototypes, or products already on the market, and illustrates advantages and disadvantages of the sol-gel process in comparison to other methods. The first chapter entitled Wet Chemical Technology gives a summary of the basic

principles of the sol-gel chemistry. The most promising applications are related to coatings. Chapter 2 describes the various Wet Chemical Coating Technologies from glass cleaning to many deposition and post-coating treatment techniques. These include patterning of coatings through direct or indirect techniques which have became very important and for which the solgel processing is particularly well adapted. Chapter 3 entitled Bulk Glass Technologies reports on the preparation of special glasses for different applications. Chapter 4 entitled Coatings and Materials Properties describes the properties of the different coatings and the sol-gel materials, fibers and powders. The chapter also includes a section dedicated to the characterization techniques especially applied to sol-gel coatings and products.

eIoT Steffi O. Muhanji, Alison E. Flint, Amro M. Farid, 2019-02-20 This open access book explores the collision between the sustainable energy transition and the Internet of Things (IoT). In that regard, this book's arrival is timely. Not only is the Internet of Things for energy applications, herein called the energy Internet of Things (eIoT), rapidly developing but also the transition towards sustainable energy to abate global climate is very much at the forefront of public discourse. It is within the context of these two dynamic thrusts, digitization and global climate change, that the energy industry sees itself undergoing significant change in how it is operated and managed. This book recognizes that they impose five fundamental energy management change drivers: 1.) the growing demand for electricity, 2.) the emergence of renewable energy resources, 3.) the emergence of electrified transportation, 4.) the deregulation of electric power markets, 5.) and innovations in smart grid technology. Together, they challenge many of the assumptions upon which the electric grid was first built. The goal of this book is to provide a single integrated picture of how eIoT can come to transform our energy infrastructure. This book links the energy management change drivers mentioned above to the need for a technical energy management solution. It, then, describes how eloT meets many of the criteria required for such a technical solution. In that regard, the book stresses the ability of eIoT to add sensing, decision-making, and actuation capabilities to millions or perhaps even billions of interacting "smart devices. With such a large scale transformation composed of so many independent actions, the book also organizes the discussion into a single multi-layer energy management control loop structure. Consequently, much attention is given to not just network-enabled physical devices but also communication networks, distributed control & decision making, and finally technical architectures and standards. Having gone into the detail of these many simultaneously developing technologies, the book returns to how these technologies when integrated form new applications for transactive energy. In that regard, it highlights several eIoT-enabled energy management use cases that fundamentally change the relationship between end users, utilities, and grid operators. Consequently, the book discusses some of the emerging applications for utilities, industry, commerce, and residences. The book concludes that these eIoT applications will transform today's grid into one that is much more responsive, dynamic, adaptive and flexible. It also concludes that this transformation will bring about new challenges and opportunities for the cyber-physical-economic performance of the grid and the business models of its increasingly growing number of participants and stakeholders.

Control Problems in Robotics Antonio Bicchi, Henrik Christensen, Domenico Prattichizzo, 2007-07-12 The ?eld of robotics continues to ?ourish and develop. In common with general scienti?c investigation, new ideas and implementations emerge quite spontaneously and these are discussed, used, discarded or subsumed at c- ferences, in the reference journals, as well as through the Internet. After a little more maturity has been acquired by the new concepts, then archival publication as a scienti?c or engineering monograph may occur. The goal of the Springer Tracts in Advanced Robotics is to publish new developments and advances in the ?elds of robotics research rapidly and informally but with a high quality. It is hoped that prospective authors will welcome the opportunity to publish a structured presentation of some of the emerging robotics methodologies and technologies. The edited volume by Antonio Bicchi, Henrik Christensen and Domenico Prattichizzo is the outcome of the second edition of a workshop jointly sponsored by the IEEE Control Systems Society and the IEEE Robotics and Automation Society. Noticeably, the previous volume was published in the Springer Lecture Notes on Control and Information Sciences. The authors are recognised as leading scholars internationally. A n- ber of challenging control problems on the forefront of today's research in robotics and automation are covered, with special emphasis on vision, sensory-feedback control, human-centered robotics, manipulation, planning, ?exible and cooperative robots, assembly systems.

Automotive Mechatronics: Operational and Practical Issues B. T. Fijalkowski, 2010-11-25 This book presents operational and practical issues of automotive mechatronics with special emphasis on the heterogeneous automotive vehicle systems approach, and is intended as a graduate text as well as a reference for scientists and engineers involved in the design of automotive mechatronic control systems. As the complexity of automotive vehicles increases, so does the dearth of high competence, multi-disciplined automotive scientists and engineers. This book provides a discussion into the type of mechatronic control systems found in modern vehicles and the skills required by automotive scientists and engineers working in this environment. Divided into two volumes and five parts, Automotive Mechatronics aims at improving automotive mechatronics education and emphasises the training of students' experimental hands-on abilities, stimulating and promoting experience among high education institutes and produce more automotive mechatronics and automation engineers. The main subject that are treated are: VOLUME I: RBW or XBW unibody or chassis-motion mechatronic control hypersystems; DBW AWD propulsion mechatronic control systems; BBW AWB dispulsion mechatronic control systems; VOLUME II: SBW AWS diversion mechatronic control systems; ABW AWA suspension mechatronic control systems. This volume was developed for undergraduate and postgraduate students as well as for professionals involved in all disciplines related to the design or research and development of automotive vehicle dynamics, powertrains, brakes, steering, and shock absorbers (dampers). Basic knowledge of college mathematics, college physics, and knowledge of the functionality of automotive vehicle basic propulsion, dispulsion, conversion and suspension systems is required.

Robotics, Machinery and Engineering Technology for Precision Agriculture Mark Shamtsyan, Marco Pasetti, Alexey Beskopylny, 2021-10-04 This book is a collection of papers presented at XIV International Scientific Conference "INTERAGROMASH 2021", held at Don State Technical University, Rostov-on-Don, Russia, during 24–26 February 2021. The research results presented in this book cover applications of unmanned aerial systems, satellite-based applications for precision agriculture, proximal and remote sensing of soil and crop, spatial analysis, variable-rate technology, embedded sensing systems, drainage optimization and variable rate irrigation, wireless sensor networks, Internet of things, robotics, guidance and automation, software and mobile apps for precision agriculture, decision support for precision agriculture and data mining for precision agriculture.

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