

## Curved Mirrors Ray Diagrams Wikispaces

Advances in adaptive optics technology and applications move forward at a rapid pace. The basic idea of wavefront compensation in real-time has been around since the mid 1970s. The first widely used application of adaptive optics was for compensating atmospheric turbulence effects in astronomical imaging and laser beam propagation. While some topics have been researched and reported for years, even decades, new applications and advances in the supporting technologies occur almost daily. This book brings together 11 original chapters related to adaptive optics, written by an international group of invited authors. Topics include atmospheric turbulence characterization, astronomy with large telescopes, image post-processing, high power laser distortion compensation, adaptive optics and the human eye, wavefront sensors, and deformable mirrors.

World History: Cultures, States, and Societies to 1500 offers a comprehensive introduction to the history of humankind from prehistory to 1500. Authored by six USG faculty members with advance degrees in History, this textbook offers up-to-date original scholarship. It covers such cultures, states, and societies as Ancient Mesopotamia, Ancient Israel, Dynastic Egypt, India's Classical Age, the Dynasties of China, Archaic Greece, the Roman Empire, Islam, Medieval Africa, the Americas, and the Khanates of Central Asia. It includes 350 high-quality images and maps, chronologies, and learning questions to help guide student learning. Its digital nature allows students to follow links to applicable sources and videos, expanding their educational experience beyond the textbook. It provides a new and free alternative to traditional textbooks, making World History an invaluable resource in our modern age of technology and advancement. Provides easy to understand information and guidelines about the design and construction of binoscopes Focusing on both homemade and commercial products, this book provides the reader with simple and straightforward information about the modelling and building of binoscopes. Binoscopes can be thought of as binoculars enlarged to the size of telescopes: essentially, a combination of the two. Constructing a binoscope is easier than most people think, but it still demands attention to detail and proper background knowledge. The author goes on to provide additional information about how to understand the products currently on the market, should the reader choose to purchase a binoscope instead of building one. Lastly, the book also compares binoscopes with telescopes in great detail, outlining the differences the reader can expect to see in the night sky from using both. The celestial views obtained with a binoscope, compared to a single telescope of the same aperture, are a very different experience and well worth the effort.

Synthetic Worlds, Virtual Worlds, and Alternate Realities are all terms used to describe the phenomenon of computer-based, simulated environments in which users inhabit and interact via avatars. The best-known commercial applications are in the form of electronic gaming, and particularly in massively-multiplayer online role-playing games like World of Warcraft or Second Life. Less known, but possibly more important, is the rapid adoption of platforms in education and business, where Serious Games are being used for training purposes, and even Second Life is being used in many situations that formerly required travel. The editors of this book captures the state of research in the field intended to reflect the rapidly growing yet relatively young market in education and business. The general focus is set on the scientific community but integrates the practical applications for businesses, with papers on information systems, business models, and economics. In six parts, international authors – all experts in their field – discuss the current state-of-the-art of virtual worlds/alternate realities and how the field will develop over the next years. Chapters discuss the influences and impacts in and around virtual worlds. Part four is about education, with a focus on learning environments and experiences, pedagogical models, and the effects on the different roles in the educational sector. The book looks at business models and how companies can participate in virtual worlds while receiving a return on investment, and includes cases and scenarios of integration, from design, implementation to application.

This volume offers a comprehensive, empirical and methodological view over new scenarios recently emerged in language teaching and learning, such as blended learning, e-learning, ubiquitous, social, autonomous or lifelong learning, and also over some new (ICT-based) approaches that can support them (CALL, MALL, CLIL, LMOOCs).

This comprehensive and extensively classroom-tested biophysics textbook is a complete introduction to the physical principles underlying biological processes and their applications to the life sciences and medicine. The foundations of natural processes are placed on a firm footing before showing how their consequences can be explored in a wide range of biosystems. The goal is to develop the readers intuition, understanding, and facility for creative analysis that are frequently required to grapple with problems involving complex living organisms. Topics cover all scales, encompassing the application of statics, fluid dynamics, acoustics, electromagnetism, light, radiation physics, thermodynamics, statistical physics, quantum biophysics, and theories of information, ordering, and evolutionary optimization to biological processes and bio-relevant technological implementations. Sound modeling principles are emphasized throughout, placing all the concepts within a rigorous framework. With numerous worked examples and exercises to test and enhance the readers understanding, this book can be used as a textbook for physics graduate students and as a supplementary text for a range of premedical, biomedical, and biophysics courses at the undergraduate and graduate levels. It will also be a useful reference for biologists, physicists, medical researchers, and medical device engineers who want to work from first principles.

"In Education Nation author Milton Chen draws from extensive experience in media--from his work on Sesame Street in its nascent years to his current role as executive director of the George Lucas Educational Foundation--to support his vision for a new world of learning. Presented in five parts and divided into "module" chapters, this book examines the ways in which K-12 learning can be revolutionized through innovative reform and the use of technology. Due in large part to new technologies, over the last few decades we've witnessed a huge shift in how we imagine teaching and learning. A good example is the educational revolution sparked by Sesame Street--which in its first season had a goal of teaching

preschool-age children the numbers 1 to 10. At the time, experts dismissed it as an unrealistic goal since many kindergarten students were having trouble mastering this simple counting. Yet the research proved that preschool-age children learned those skills and many others directly from the TV screen. Now Sesame Street's curriculum teaches the numbers from 1 to 40. In today's digital age the number of new ways to teach and learn is ever-expanding and includes: television, Google, YouTube, TeacherTube, Facebook, iPhones, video games, GPS devices, open source textbooks, interactive whiteboards; and there are countless examples of ways technology positively impacts student learning--from voice-recognition software that helps children learn to read to translation tools that help teachers communicate with non-English speaking parents. As a result of constant innovation, learning is no longer limited by traditional confines and we're quickly moving beyond students tied to their chairs, desks, and textbooks--and teachers locked away in classrooms."--

After decades of research and development, concentrating solar thermal (CST) power plants (also known as concentrating solar power (CSP) and as Solar Thermal Electricity or STE systems) are now starting to be widely commercialized. Indeed, the IEA predicts that by 2050, with sufficient support over ten percent of global electricity could be produced by concentrating solar thermal power plants. However, CSP plants are just but one of the many possible applications of CST systems. Advances in Concentrating Solar Thermal Research and Technology provides detailed information on the latest advances in CST systems research and technology. It promotes a deep understanding of the challenges the different CST technologies are confronted with, of the research that is taking place worldwide to address those challenges, and of the impact that the innovation that this research is fostering could have on the emergence of new CST components and concepts. It is anticipated that these developments will substantially increase the cost-competitiveness of commercial CST solutions and reshape the technological landscape of both CST technologies and the CST industry. After an introductory chapter, the next three parts of the book focus on key CST plant components, from mirrors and receivers to thermal storage. The final two parts of the book address operation and control and innovative CST system concepts. Contains authoritative reviews of CST research taking place around the world Discusses the impact this research is fostering on the emergence of new CST components and concepts that will substantially increase the cost-competitiveness of CST power Covers both major CST plant components and system-wide issues

This book discusses the importance of identifying and addressing misconceptions for the successful teaching and learning of science across all levels of science education from elementary school to high school. It suggests teaching approaches based on research data to address students' common misconceptions. Detailed descriptions of how these instructional approaches can be incorporated into teaching and learning science are also included. The science education literature extensively documents the findings of studies about students' misconceptions or alternative conceptions about various science concepts. Furthermore, some of the studies involve systematic approaches to not only creating but also implementing instructional programs to reduce the incidence of these misconceptions among high school science students. These studies, however, are largely unavailable to classroom practitioners, partly because they are usually found in various science education journals that teachers have no time to refer to or are not readily available to them. In response, this book offers an essential and easily accessible guide.

Statistical mechanics is one of the most exciting areas of physics today, and it also has applications to subjects as diverse as economics, social behavior, algorithmic theory, and evolutionary biology. Statistical Mechanics in a Nutshell offers the most concise, self-contained introduction to this rapidly developing field. Requiring only a background in elementary calculus and elementary mechanics, this book starts with the basics, introduces the most important developments in classical statistical mechanics over the last thirty years, and guides readers to the very threshold of today's cutting-edge research. Statistical Mechanics in a Nutshell zeroes in on the most relevant and promising advances in the field, including the theory of phase transitions, generalized Brownian motion and stochastic dynamics, the methods underlying Monte Carlo simulations, complex systems--and much, much more. The essential resource on the subject, this book is the most up-to-date and accessible introduction available for graduate students and advanced undergraduates seeking a succinct primer on the core ideas of statistical mechanics. Provides the most concise, self-contained introduction to statistical mechanics Focuses on the most promising advances, not complicated calculations Requires only elementary calculus and elementary mechanics Guides readers from the basics to the threshold of modern research Highlights the broad scope of applications of statistical mechanics

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For training that is as fun as it is effective, this is a must-have resource for anyone involved in training. Detailing the "who," "what," "when," "why" and "how" of learning, *Telling Ain't Training* provides everything you need to energise and engage leaders regardless of age experience. Fast-paced, fun and interactive, *Telling Ain't Training* incorporates principles of adult learning to separate learning myth from learning fact. Understand how people learn, what makes training successful, why training fails and how to achieve amazing training results. "What year are you preparing your students for? 1973? 1995? Can you honestly say that your school's curriculum and the program you use are preparing your students for 2015 or 2020? Are you even preparing them for today?" With those provocative questions, author and educator Heidi Hayes Jacobs launches a powerful case for overhauling, updating, and injecting life into the K-12 curriculum. Sharing her expertise as a world-renowned curriculum designer and calling upon the collective wisdom of 10 education thought leaders, Jacobs provides insight and inspiration in the following key areas: \* Content and assessment--How to identify what to keep, what to cut, and what to create, and where portfolios and other new kinds of assessment fit into the picture. \* Program structures--How to improve our use of time and space and groupings of students and staff. \* Technology--How it's transforming teaching, and how to take advantage of students' natural facility with technology. \* Media literacy--The essential issues to address, and the best resources for helping students become informed users of multiple forms of media. \* Globalization--What steps to take to help students gain a global perspective. \* Sustainability--How to instill enduring values and beliefs that will lead to healthier local, national, and global communities. \* Habits of mind--The thinking habits that students, teachers, and administrators need to develop and practice to succeed in school, work, and life. The answers to these questions and many more make Curriculum 21 the ideal guide for transforming our schools into what they must become: learning organizations that match the times in which we live.

With sustainability having gained a lot of momentum over the last years and companies implementing strategies to create corporate sustainability, there are lots of opportunities for innovation. Thus, the two concepts of sustainability and innovation should not be considered separately – they are closely interlinked with one another. The main goal of sustainable innovation is to develop new products and technologies that have a positive impact on the company's triple-bottom-line. To meet this aim, they have to be ecologically and economically beneficial as well as socially balanced. In order to help companies to improve their sustainable innovation process practically, this book is structured into five possible phases of a sustainable innovation process: Awareness of a sustainability problem, Identification & Definition of the problem, Ideation & Evaluation of the solutions, Testing & Enrichment of the solutions, Implementation of the solutions & Green Marketing.

When most people think of wikis, the first---and usually the only---thing that comes to mind is Wikipedia. The editors of Wiki Writing: Collaborative Learning in the College Classroom, Robert E. Cummings and Matt Barton, have assembled a

collection of essays that challenges this common misconception, providing an engaging and helpful array of perspectives on the many pressing theoretical and practical issues that wikis raise. Written in an engaging and accessible manner that will appeal to specialists and novices alike, Wiki Writing draws on a wealth of practical classroom experiences with wikis to offer a series of richly detailed and concrete suggestions to help educators realize the potential of these new writing environments. Robert E. Cummings began work at Columbus State University in August 2006 as Assistant Professor of English and Director of First-Year Composition. Currently he also serves as the Writing Specialist for CSU's Quality Enhancement Plan, assisting teachers across campus in their efforts to maximize student writing in their curriculum. He recently concluded a three-year research study with the Inter/National Coalition for Electronic Portfolio Research and continues to research in the fields of computers and writing, writing across the curriculum, writing in the disciplines, and curricular reform in higher education. Matt Barton is Assistant Professor, St. Cloud State University, Department of English-Rhetoric and Applied Writing Program. His research interests are rhetoric, new media, and computers and writing. He is the author of *Dungeons and Desktops: A History of Computer Role-Playing Games* and has published in the journals *Text and Technology*, *Computers and Composition*, *Game Studies*, and *Kairos*. He is currently serving as Associate Editor of *Kairosnews* and Managing Editor of *Armchair Arcade*. "Wiki Writing will quickly become the standard resource for using wikis in the classroom." ---Jim Kalmbach, Illinois State University *digitalculturebooks* is an imprint of the University of Michigan Press and the Scholarly Publishing Office of the University of Michigan Library dedicated to publishing innovative and accessible work exploring new media and their impact on society, culture, and scholarly communication. Visit the website at [www.digitalculture.org](http://www.digitalculture.org).

Many reports over the last few years have analysed the potential use of games, videogames, 3D environments and virtual reality for educational purposes. Numerous emerging technological devices have also appeared that will play important roles in the development of teaching and learning processes. In the context of these developments, learning rather than teaching becomes the main axis in the organisation of the educational process. This process has now gone beyond the analogue world and face-to-face education to enter the digital world, where new learning environments are being produced with ever greater doses of realism. *Teaching and Learning in Digital Worlds* examines the teaching and learning process in 3D virtual environments from both the theoretical and practical points of view.

This little book concentrates on the foundations of modern physics (its OC ABC'sOCO) and its most fundamental constants:  $c$  OCo the velocity of light and  $\hbar$  OCo the quantum of action. First of all, the book is addressed to professional physicists, but in order to achieve maximal concentration and clarity it uses the simplest (high school) mathematics. As a result many pages of the book will be useful to college students and may appeal to a more general audience."

This book fills the need for a text that integrates Information and Communication Technologies (ICTs) into English for Specific Purposes (ESP). It offers insights on current methodological principles in ESP in both academic and professional contexts, drawing on authentic teaching and learning situations, and analyses best practice guidelines. Part I begins with ESP pedagogical principles and technological practice in order to focus on its two main branches: English for Academic Purposes, which includes linguistic skills and students' needs, and English for Occupational Purposes, specifically looking at Business, Medical and Translators courses. This book is a great resource for ESP researchers, educators and students, because it provides case studies of how ICTs can be used in English for multiple purposes. Authors present their experiences of integrating tools into their instructions, with each chapter contributing unique pedagogical implications.

*Sensor Technologies: Healthcare, Wellness and Environmental Applications* explores the key aspects of sensor technologies, covering wired, wireless, and discrete sensors for the specific application domains of healthcare, wellness and environmental sensing. It discusses the social, regulatory, and design considerations specific to these domains. The book provides an application-based approach using real-world examples to illustrate the application of sensor technologies in a practical and experiential manner. The book guides the reader from the formulation of the research question, through the design and validation process, to the deployment and management phase of sensor applications. The processes and examples used in the book are primarily based on research carried out by Intel or joint academic research programs. "Sensor Technologies: Healthcare, Wellness and Environmental Applications provides an extensive overview of sensing technologies and their applications in healthcare, wellness, and environmental monitoring. From sensor hardware to system applications and case studies, this book gives readers an in-depth understanding of the technologies and how they can be applied. I would highly recommend it to students or researchers who are interested in wireless sensing technologies and the associated applications." Dr. Benny Lo Lecturer, The Hamlyn Centre, Imperial College of London "This timely addition to the literature on sensors covers the broad complexity of sensing, sensor types, and the vast range of existing and emerging applications in a very clearly written and accessible manner. It is particularly good at capturing the exciting possibilities that will occur as sensor networks merge with cloud-based 'big data' analytics to provide a host of new applications that will impact directly on the individual in ways we cannot fully predict at present. It really brings this home through the use of carefully chosen case studies that bring the overwhelming concept of 'big data' down to the personal level of individual life and health." Dermot Diamond Director, National Centre for Sensor Research, Principal Investigator, CLARITY Centre for Sensor Web Technologies, Dublin City University "Sensor Technologies: Healthcare, Wellness and Environmental Applications takes the reader on an end-to-end journey of sensor technologies, covering the fundamentals from an engineering perspective, introducing how the data gleaned can be both processed and visualized, in addition to offering exemplar case studies in a number of application domains. It is a must-read for those studying any undergraduate course that involves sensor technologies. It also provides a thorough foundation for those involved in the research and development of applied sensor systems. I highly recommend it to any engineer who wishes to broaden their knowledge in this area!" Chris Nugent Professor of Biomedical Engineering, University of Ulster

This new edition provides a comprehensive, colorful, up-to-date, and accessible presentation of AI without sacrificing theoretical foundations. It includes numerous examples, applications, full color images, and human interest boxes to enhance student interest. New chapters on robotics and machine learning are now included. Advanced topics cover neural nets, genetic algorithms, natural language processing, planning, and complex board games. A companion DVD is provided with resources, applications, and figures from the book. Numerous instructors' resources are available upon adoption. eBook Customers: Companion files are available for downloading with order number/proof of purchase by writing to the publisher at [info@merclearning.com](mailto:info@merclearning.com). FEATURES: • Includes new chapters on robotics and machine learning and new sections on speech understanding and metaphor in NLP • Provides a comprehensive, colorful, up to date, and accessible presentation of AI without sacrificing theoretical foundations • Uses numerous examples, applications, full color images, and human interest boxes to enhance student interest • Introduces important AI concepts e.g., robotics, use in video games, neural nets, machine learning, and more thorough practical applications • Features over 300 figures and color images with worked problems detailing AI methods and solutions to selected exercises • Includes DVD with resources, simulations, and figures from the book • Provides numerous instructors' resources, including: solutions to exercises, Microsoft PP slides, etc.

Satyendra Nath Bose became a legendary figure of science in the 20th century in India with his revolutionary discovery on the nature of radiation. Despite the association with Einstein, however, little is known about him outside of India. This book highlights the remarkable intellect and the extraordinary personality of Bose set against the backdrop of a rich Bengali cultural tradition and British-Indian politics. Unlike other books covering the significance of Bose's discovery, this book describes his diverse scientific contributions to India's scientific community by bringing together selected articles and addresses by Bose as well as contributions from some well-known scientists on the many-faceted life of Bose, thus making it a truly unique volume.

E-learning has brought an enormous change to instruction, in terms of both rules and tools. Contemporary education requires diverse and creative uses of media technology to keep students engaged and to keep up with rapid developments in the ways they learn and teachers teach. Media Rich Instruction addresses these requirements with up-to-date learning theory and practices that incorporate innovative platforms for information delivery into traditional areas such as learning skills and learner characteristics. Experts in media rich classroom experiences and online instruction delve into the latest findings on student cognitive processes and motivation to learn while offering multimedia classroom strategies geared to specific curriculum areas. Advances such as personal learning environments, gamification, and the Massive Open Online Course are analyzed in the context of their potential for collaborative and transformative learning. And each chapter features key questions and application activities to make coverage especially practical across grade levels and learner populations. Among the topics included: Building successful learning experiences online. Language and literacy, reading and writing. Mathematics teaching and learning with and through education technology. Learning science through experiment and practice. Social studies teaching for learner engagement. The arts and Technology. Connecting school to community. At a time when many are pondering the future of academic standards and student capacity to learn, Media Rich Instruction is a unique source of concrete knowledge and useful ideas for current and future researchers and practitioners in media rich instructional strategies and practices.

This undergraduate textbook aids readers in studying music and color, which involve nearly the entire gamut of the fundamental laws of classical as well as atomic physics. The objective bases for these two subjects are, respectively, sound and light. Their corresponding underlying physical principles overlap greatly: Both music and color are manifestations of wave phenomena. As a result, commonalities exist as to the production, transmission, and detection of sound and light. Whereas traditional introductory physics textbooks are styled so that the basic principles are introduced first and are then applied, this book is based on a motivational approach: It introduces a subject with a set of related phenomena, challenging readers by calling for a physical basis for what is observed. A novel topic in the first edition and this second edition is a non-mathematical study of electric and magnetic fields and how they provide the basis for the propagation of electromagnetic waves, of light in particular. The book provides details for the calculation of color coordinates and luminosity from the spectral intensity of a beam of light as well as the relationship between these coordinates and the color coordinates of a color monitor. The second edition contains corrections to the first edition, the addition of more than ten new topics, new color figures, as well as more than forty new sample problems and end-of-chapter problems. The most notable additional topics are: the identification of two distinct spectral intensities and how they are related, beats in the sound from a Tibetan bell, AM and FM radio, the spectrogram, the short-time Fourier transform and its relation to the perception of a changing pitch, a detailed analysis of the transmittance of polarized light by a Polaroid sheet, brightness and luminosity, and the mysterious behavior of the photon. The Physics of Music and Color is written at a level suitable for college students without any scientific background, requiring only simple algebra and a passing familiarity with trigonometry. The numerous problems at the end of each chapter help the reader to fully grasp the subject.

Explorations of science, technology, and innovation in Africa not as the product of "technology transfer" from elsewhere but as the working of African knowledge. In the STI literature, Africa has often been regarded as a recipient of science, technology, and innovation rather than a maker of them. In this book, scholars from a range of disciplines show that STI in Africa is not merely the product of "technology transfer" from elsewhere but the working of African knowledge. Their contributions focus on African ways of looking, meaning-making, and creating. The chapter authors see Africans as intellectual agents whose perspectives constitute authoritative knowledge and whose strategic deployment of both endogenous and inbound things represents an African-centered notion of STI. "Things do not (always) mean the same from everywhere," observes Clapperton Chakanetsa Mavhunga, the volume's editor. Western, colonialist definitions of

STI are not universalizable. The contributors discuss topics that include the trivialization of indigenous knowledge under colonialism; the creative labor of chimurenga, the transformation of everyday surroundings into military infrastructure; the role of enslaved Africans in America as innovators and synthesizers; the African ethos of “fixing”; the constitutive appropriation that makes mobile technologies African; and an African innovation strategy that builds on domestic capacities. The contributions describe an Africa that is creative, technological, and scientific, showing that African STI is the latest iteration of a long process of accumulative, multicultural knowledge production. Contributors Geri Augusto, Shadreck Chirikure, Chux Daniels, Ron Eglash, Ellen Foster, Garrick E. Louis, D. A. Masolo, Clapperton Chakanetsa Mavhunga, Neda Nazemi, Toluwalogo Odumosu, Katrien Pype, Scott Remer

The nature of engineering and its societal impact are covered, as well as the educational and legal requirements needed to become an engineer. Engineers contribute to the development of many innovations that improve life. We investigate how engineers work to meet human needs; great engineering accomplishments of the past; and consider needs that engineering must meet in the future. Engineering design process, how it differs design processes, and how the implementation of the design process effects the quality of the resulting design. The application of the principles of mathematics and science to the creation or modification of components, systems, and processes for the benefit of society are covered with a focus on the balance between quality, performance, and cost. How engineers use creativity and judgment to solve societal how problems; complex engineering problems are usually solved by teams are covered; as well as the intended desirable consequences and unintended undesirable consequences of engineering.

Grades: 7 to 12 Each chapter includes theory, notes on classroom implications, and implementation suggestions. Bridges theory and practice Targets the needs of the adolescent learner Roots differentiated instruction within an effective classroom Unique Features Quiz for each chapter to guide teachers through a personalized exploration of content Implications for the Classroom examine specific issues related to adolescence and how these affect teaching and learning Try This provides specific strategies for differentiated instruction in the adolescent classroom Learn More About provides sources for additional reading on specific topics CD-ROM provides easy-to-use modifiable blackline masters Look for the Administrator's Guide by Karen Hume: Supporting and Sustaining Differentiated Instruction (with CD-ROM) Also coming soon: Start Where They Are Professional Development e-Book (book & DVD)

The main thrust of this book is focused on addressing the various interrelated processes, analysis and activities bearing upon sound river management. River basins are complex systems. They are open systems with sometimes ill-defined boundaries. It refers to various aspects essential to achieve a sustainable development of river basins, including water demand and river management. Intensified erosion, land water degradation and stream flow pollution which call for appropriate river restoration and training measures. A viable theory for river management must reconcile the various processes that occur at different scales in order to develop a knowledge base by synthesizing research and field studies results. The book is intended to augment the knowledge base of behaviour of rivers and analyse the issues related to rivers so as to develop river system management techniques emerging from in-depth scientific analysis as a priority. This book pools together the expertise, the in-depth knowledge and the experience of the people representing different disciplines bearing on the related aspects of analysis and management of river systems. Audience The book is expected to be useful to academics, practitioners, scientists, water managers, environmentalists, administrators, researchers and students who are involved and have stakes in water management and river system analysis.

This is a book about the intersections of three dimensions. The first is the way social scientists and historians treat the history of psychiatry and healing, especially as it intersects with psychedelics. The second encompasses a reflection on the substances themselves and their effects on bodies. The third addresses traditional healing, as it circles back to our understanding of drugs and psychiatry. The chapters explore how these dimensions are distinct, but deeply intertwined, themes that offer important insights into contemporary healing practices. The intended audience of the volume is large and diverse: neuroscientists, biologists, medical doctors, psychiatrists, psychologists; mental health professionals interested in the therapeutic application of psychedelic substances, or who work with substance abuse, depression, anxiety, and PTSD; patients and practitioners of complementary and alternative medicine; ethnobotanists and ethnopharmacologists; lawyers, criminologists, and other specialists in international law working on matters related to drug policy and human rights, as well as scholars of religious studies, anthropologists, sociologists, and historians; social scientists concerned both with the history of science, medicine, and technology, and concepts of health, illness, and healing. It has a potentially large international audience, especially considering the increasing interest in “psychedelic science” and the growing spread of the use of traditional psychoactives in the West.

Narrating the well-lived life of the “Chinese Madame Curie” — a recipient of the first Wolf Prize in Physics (1978), the first woman to receive an honorary doctorate from Princeton University, as well as the first female president of the American Physical Society — this book provides a comprehensive and honest account of the life of Dr Wu Chien-Shiung, an outstanding and leading experimental physicist of the 20th century. The automotive industry appears close to substantial change engendered by “self-driving” technologies. This technology offers the possibility of significant benefits to social welfare—saving lives; reducing crashes, congestion, fuel consumption, and pollution; increasing mobility for the disabled; and ultimately improving land use. This report is intended as a guide for state and federal policymakers on the many issues that this technology raises.

This book gathers selected papers presented at the 2nd International Conference on Computing, Communications and Data Engineering, held at Sri Padmavati Mahila Visvavidyalayam, Tirupati, India from 1 to 2 Feb 2019. Chiefly discussing major issues and challenges in data engineering systems and computer communications, the topics covered include wireless systems and IoT, machine learning, optimization, control, statistics, and social computing.

This book comprises the proceedings of the International Conference on Transformations in Engineering Education conducted jointly by BVB College of Engineering & Technology, Hubli, India and Indo US Collaboration for Engineering Education (IUCEE). This event is done in collaboration with International Federation of Engineering Education Societies (IFEES), American Society for Engineering Education (ASEE) and Global Engineering Deans' Council (GEDC). The conference is about showcasing the transformational practices in Engineering

Education space.

Just as the circle number  $\pi$  or the Euler constant  $e$  determines mathematics, fundamental constants of nature define the scales of the natural sciences. This book presents a new perspective by means of a few axioms and compares the resulting validity with experimental data. By the axiomatic approach Sommerfeld's mysterious fine-structure constant and Dirac's cosmic number are fixed as pure number constants. Thanks to these number constants, it is possible to calculate the value for the anomalous magnetic-moment of the electron in a simple way compared to QED calculations. With the same number constants it is also possible to calculate masses, partial lifetimes, magnetic-moments or charge radii of fundamental particles. The expressions used for the calculations, with few exceptions, yield values within the experimental error limits of the Particle Data Group. The author shows that the introduced number constants give even better predictions than the complicated QED calculations of today's doctrine. In the first part only experimental data from the literature for checking the postulates are used. In the second part the author explains electrical transport measurements with emergent behaviour, which were carried out in a professional environment.

Higher Education in South Africa should be of considerable interest to higher education researchers outside of South Africa, as well as within, for the general and comparative assessments it makes. The South African higher education researchers included within its covers have clearly engaged with research and writing from many parts of the world, which they have then applied to make sense of their own condition. ? ? Malcolm Tight Lancaster University, UK

This book argues for the essential use of drawing as a tool for science teaching and learning. The authors are working in schools, universities, and continual science learning (CSL) settings around the world. They have written of their experiences using a variety of prompts to encourage people to take pen to paper and draw their thinking – sometimes direct observation and in other instances, their memories. The result is a collection of research and essays that offer theory, techniques, outcomes, and models for the reader. Young children have provided evidence of the perceptions that they have accumulated from families and the media before they reach classrooms. Secondary students describe their ideas of chemistry and physics. Teacher educators use drawings to consider the progress of their undergraduates' understanding of science teaching and even their moral/ethical responses to teaching about climate change. Museum visitors have drawn their understanding of the physics of how exhibit sounds are transmitted. A physician explains how the history of drawing has been a critical tool to medical education and doctor-patient communications. Each chapter contains samples, insights, and where applicable, analysis techniques. The chapters in this book should be helpful to researchers and teachers alike, across the teaching and learning continuum. The sections are divided by the kinds of activities for which drawing has historically been used in science education: An instance of observation (Audubon, Linnaeus); A process (how plants grow over time, what happens when chemicals combine); Conceptions of what science is and who does it; Images of identity development in science teaching and learning.

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