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The Physics of Radiation Therapy - Faiz M. Khan 2012-03-28
Dr. Khan's classic textbook on radiation oncology physics is now in its thoroughly revised and updated Fourth Edition. It provides the entire radiation therapy team—radiation oncologists, medical physicists, dosimetrists, and radiation therapists—with a thorough understanding of the physics and practical clinical applications of advanced radiation therapy technologies, including 3D-CRT, stereotactic radiotherapy, HDR, IMRT, IGRT, and proton beam therapy. These technologies are discussed along with the physical concepts underlying treatment planning, treatment delivery, and dosimetry. This Fourth Edition includes brand-new chapters on image-guided

radiation therapy (IGRT) and proton beam therapy. Other chapters have been revised to incorporate the most recent developments in the field. This edition also features more than 100 full-color illustrations throughout. A companion Website will offer the fully searchable text and an image bank.

Electronic Structure - Richard M. Martin 2004-04-08
The study of the electronic structure of materials is at a momentous stage, with the emergence of computational methods and theoretical approaches. Many properties of materials can now be determined directly from the fundamental equations for the electrons, providing insights into critical problems in physics, chemistry, and materials science. This book provides a unified exposition of the basic theory and methods of electronic structure, together with instructive examples of practical computational methods and real-world applications. Appropriate for both graduate students and practising scientists, this book describes the approach most widely used today, density functional theory, with emphasis upon understanding the ideas, practical methods and limitations. Many references are provided to original papers, pertinent reviews, and widely available books. Included in each chapter is a short list of the most relevant references and a set of exercises that reveal salient points and challenge the reader.

Introduction to Health Physics - Herman Cember 1992
This guide offers students a background and basic understanding of the biophysical bases of radiation, radiation safety standards and the key factors in radiation protection. A revised and expanded edition, the book's contents include: radiation dosimetry, basic physical principles, biological effects of radiation, criticality control and radiation surveillance. The author also highlights new findings on non-ionizing radiation (laser and

microwaves), computer use in dose calculation and dose limit recommendations from the International Commission on Radiation Protection. It aims to provide students with a framework and practical introduction to scientific principles and the problem-solving approaches needed in daily radiation protection practice.

Heavy Quark Physics - Aneesh V. Manohar 2007-07-02 Understanding the physics of heavy quarks gives physicists the unique opportunity to test the predictions of Quantum Chromodynamics and the Standard Model. Heavy Quark Physics provides an exciting introduction to this new area of high energy physics. Two leading experts in the field review the standard model, the basics of heavy quark spin-flavor symmetry, and detail how it can be applied to the classification of states, decays and fragmentation. The heavy quark effective theory is developed, including the radiative and 1/mQ corrections, and applied to the study of hadron masses, form factors, and inclusive decay rates. The authors also discuss the application of chiral perturbation theory to heavy hadrons. To aid the reader, many of the key calculations are performed step by step, and problems are provided at the end of each chapter. This lucid volume provides graduate students with an ideal introduction to the physics of heavy quarks, and more experienced researchers with an authoritative reference to the subject.

Introductory Statistics - Barbara Illowsky 2017-12-19 Introductory Statistics is designed for the one-semester, introduction to statistics course and is geared toward students majoring in fields other than math or engineering. This text assumes students have been exposed to intermediate algebra, and it focuses on the applications of statistical knowledge rather than the theory behind it. The foundation of this textbook is Collaborative Statistics, by Barbara Illowsky and Susan

Dean. Additional topics, examples, and ample opportunities for practice have been added to each chapter. The development choices for this textbook were made with the guidance of many faculty members who are deeply involved in teaching this course. These choices led to innovations in art, terminology, and practical applications, all with a goal of increasing relevance and accessibility for students. We strove to make the discipline meaningful, so that students can draw from it a working knowledge that will enrich their future studies and help them make sense of the world around them. Coverage and Scope Chapter 1 Sampling and Data Chapter 2 Descriptive Statistics Chapter 3 Probability Topics Chapter 4 Discrete Random Variables Chapter 5 Continuous Random Variables Chapter 6 The Normal Distribution Chapter 7 The Central Limit Theorem Chapter 8 Confidence Intervals Chapter 9 Hypothesis Testing with One Sample Chapter 10 Hypothesis Testing with Two Samples Chapter 11 The Chi-Square Distribution Chapter 12 Linear Regression and Correlation Chapter 13 F Distribution and One-Way ANOVA

Principles of Physics - Michael Nelkon 1990-05-01 Principles of Physics is a well-established popular textbook which has been completely revised and updated.
The Future of the Mind - Michio Kaku 2015-02-17 Michio Kaku, the New York Times bestselling author of Physics of the Impossible and Physics of the Future tackles the most fascinating and complex object in the known universe: the human brain. The Future of the Mind brings a topic that once belonged solely to the province of science fiction into a startling new reality. This scientific tour de force unveils the astonishing research being done in top laboratories around the world—all based on the latest advancements in neuroscience and physics—including recent experiments in telepathy, mind control, avatars, telekinesis, and recording memories and

dreams. The Future of the Mind is an extraordinary, mind-boggling exploration of the frontiers of neuroscience. Dr. Kaku looks toward the day when we may achieve the ability to upload the human brain to a computer, neuron for neuron; project thoughts and emotions around the world on a brain-net; take a "smart pill" to enhance cognition; send our consciousness across the universe; and push the very limits of immortality.
My Numbers, My Friends - Paulo Ribenboim 2006-05-10 This selection of expository essays by Paulo Ribenboim should be of interest to mathematicians from all walks. Ribenboim, a highly praised author of several popular titles, writes each essay in a light and humorous language without secrets, making them thoroughly accessible to everyone with an interest in numbers. This new collection includes essays on Fibonacci numbers, prime numbers, Bernoulli numbers, and historical presentations of the main problems pertaining to elementary number theory, such as Kummers work on Fermat's last theorem.
The Science of Interstellar - Kip Thorne 2014-11-07 A journey through the otherworldly science behind Christopher Nolan's award-winning film, Interstellar, from executive producer and Nobel Prize-winning physicist Kip Thorne. Interstellar, from acclaimed filmmaker Christopher Nolan, takes us on a fantastic voyage far beyond our solar system. Yet in The Science of Interstellar, Kip Thorne, the Nobel prize-winning physicist who assisted Nolan on the scientific aspects of Interstellar, shows us that the movie's jaw-dropping events and stunning, never-before-attempted visuals are grounded in real science. Thorne shares his experiences working as the science adviser on the film and then moves on to the science itself. In chapters on wormholes, black holes, interstellar travel, and much more, Thorne's scientific insights—many of them triggered during the actual

scripting and shooting of Interstellar—describe the physical laws that govern our universe and the truly astounding phenomena that those laws make possible. Interstellar and all related characters and elements are trademarks of and © Warner Bros. Entertainment Inc. (s14).

Physics at the Large Hadron Collider - Amitava Datta 2010-05-30
In an epoch when particle physics is awaiting a major step forward, the Large Hydron Collider (LHC) at CERN, Geneva will soon be operational. It will collide a beam of high energy protons with another similar beam circulation in the same 27 km tunnel but in the opposite direction, resulting in the production of many elementary particles some never created in the laboratory before. It is widely expected that the LHC will discover the Higgs boson, the particle which supposedly lends masses to all other fundamental particles. In addition, the question as to whether there is some new law of physics at such high energy is likely to be answered through this experiment. The present volume contains a collection of articles written by international experts, both theoreticians and experimentalists, from India and abroad, which aims to acquaint a non-specialist with some basic issues related to the LHC. At the same time, it is expected to be a useful, rudimentary companion of introductory exposition and technical expertise alike, and it is hoped to become unique in its kind. The fact that there is substantial Indian involvement in the entire LHC endeavour, at all levels including fabrication, physics analysis procedures as well as theoretical studies, is also amply brought out in the collection.

The Little Book of String Theory - Steven S. Gubser 2010-02-08
The essential beginner's guide to string theory The Little Book of String Theory offers a short, accessible, and entertaining introduction to one of the most

talked-about areas of physics today. String theory has been called the "theory of everything." It seeks to describe all the fundamental forces of nature. It encompasses gravity and quantum mechanics in one unifying theory. But it is unproven and fraught with controversy. After reading this book, you'll be able to draw your own conclusions about string theory. Steve Gubser begins by explaining Einstein's famous equation $E = mc2$, quantum mechanics, and black holes. He then gives readers a crash course in string theory and the core ideas behind it. In plain English and with a minimum of mathematics, Gubser covers strings, branes, string dualities, extra dimensions, curved spacetime, quantum fluctuations, symmetry, and supersymmetry. He describes efforts to link string theory to experimental physics and uses analogies that nonscientists can understand. How does Chopin's Fantasie-Impromptu relate to quantum mechanics? What would it be like to fall into a black hole? Why is dancing a waltz similar to contemplating a string duality? Find out in the pages of this book. The Little Book of String Theory is the essential, most up-to-date beginner's guide to this elegant, multidimensional field of physics.

Instant Physics - Tony Rothman 2018-04-17
For all of you who break out in a sweat at the thought of thermodynamics, or freeze up at the mention of quantum mechanics, like a bolt from the blue, INSTANT PHYSICS will zap you through the fascinating history of our most basic, yet baffling, science. From the thousand-year search for proof of the existence of the ever-elusive atom to the varied and heated arguments behind the big bang theory, INSTANT PHYSICS answers all the heavy questions with a light touch. You'll learn:* How the Greek philosophers used the sledgehammer of mathematics to break apart the mysteries of the physical universe.* Why gravity is a "romantic" force.*

How to tell the difference between a gluon, a meson, and a quark, even if you can't see them.INSTANT PHYSICS is crammed with special features, including chapter summaries, who's who lists, biographical and historical tidbits, and a host of illustrations, photos, equations, diagrams, and drawings.

The Revolt of the Public and the Crisis of Authority in the New Millennium - Martin Gurri 2018

Riding a tsunami of information, the public has trampled on the temples of authority in every domain of human activity, everywhere. The Revolt of the Public tells the story of how ordinary people, gifted amateurs networked in communities of interest, have swarmed over the hierarchies of accredited professionals, questioned their methods, and shouted their failures from the digital rooftops. In science, business, media - and, pre-eminently, in politics and government - established elites have lost the power to command attention and set the agenda.The consequences have been revolutionary. Insurgencies enabled by digital devices and a vast information sphere have mobilized millions, toppling dictators in Egypt and Tunisia, crushing the ruling Socialist Party in Spain, inspiring "Tea Parties" and "Occupations" in the United States. Trust in political authority stands at an all-time low around the world. The Revolt of the Public analyzes the composition of the public, the nature of authority and legitimacy, and the part played by the perturbing agent: information. A major theme of the book is whether democratic institutions can survive the assaults of a public that at times appears to be at war with any form of organization, if not with history itself.

The Doomsday Calculation - William Poundstone 2019-06-04

From the author of Are You Smart Enough to Work at Google?, a fascinating look at how an equation that foretells the future is transforming everything we know about life,

business, and the universe. In the 18th century, the British minister and mathematician Thomas Bayes devised a theorem that allowed him to assign probabilities to events that had never happened before. It languished in obscurity for centuries until computers came along and made it easy to crunch the numbers. Now, as the foundation of big data, Bayes' formula has become a linchpin of the digital economy. But here's where things get really interesting: Bayes' theorem can also be used to lay odds on the existence of extraterrestrial intelligence; on whether we live in a Matrix-like counterfeit of reality; on the "many worlds" interpretation of quantum theory being correct; and on the biggest question of all: how long will humanity survive? The Doomsday Calculation tells how Silicon Valley's profitable formula became a controversial pivot of contemporary thought. Drawing on interviews with thought leaders around the globe, it's the story of a group of intellectual mavericks who are challenging what we thought we knew about our place in the universe. The Doomsday Calculation is compelling reading for anyone interested in our culture and its future.
Fratelli Tutti - Pope Francis 2020-11-05

Long Story Short - Serena Kaylor 2022-07-26 "Like the best of the Bard himself, Long Story Short combines dazzling repartee with iconic, nuanced characters and the kind of charged, perfectly paced romance fit for the world stage...a sparkling Shakespearean homage and a wonderful debut." —Emily Wibberley and Austin Siegemund-Broka, authors of Always Never Yours In Serena Kaylor's sparkling debut, a homeschooled math genius finds herself out of her element at a theater summer camp and learns that life—and love—can't be lived by the (text)book. Growing up homeschooled in Berkeley, California, Beatrice Quinn has

always dreamed of discovering new mathematical challenges at Oxford University. She always thought the hardest part would be getting in, not convincing her parents to let her go. But while math has always made sense to Beatrice, making friends is a problem she hasn't been able to solve. Before her parents will send her halfway across the world, she has to prove she won't spend the next four years hiding in the library. The compromise: the Connecticut Shakespearean Summer Academy and a detailed list of teenage milestones to check off. If Beatrice wants to live out her Oxford dream, she has to survive six weeks in the role of "normal teenager" first. Unfortunately, hearts and hormones don't follow any equations. When she's adopted by a group of eclectic theater kids, and immediately makes an enemy of the popular—and annoyingly gorgeous—British son of the camp's founders, Beatrice quickly learns that relationships are trickier than calculus. With her future on the line, this girl genius stumbles through illicit parties, double dog dares, and more than her fair share of Shakespeare. But before the final curtain falls, will Beatrice realize there's more to life than what she can find in the pages of a book?

Mathematical Methods for Physicists - George B. Arfken 2012-01-17
Table of Contents
Mathematical Preliminaries Determinants and Matrices Vector Analysis Tensors and Differential Forms Vector Spaces Eigenvalue Problems Ordinary Differential Equations Partial Differential Equations Green's Functions Complex Variable Theory Further Topics in Analysis Gamma Function Bessel Functions Legendre Functions Angular Momentum Group Theory More Special Functions Fourier Series Integral Transforms Periodic Systems Integral Equations Mathieu Functions Calculus of Variations Probability and Statistics.

The Conceptual Framework of Quantum Field Theory -

Anthony Duncan 2012-08-09 The book attempts to provide an introduction to quantum field theory emphasizing conceptual issues frequently neglected in more "utilitarian" treatments of the subject. The book is divided into four parts, entitled respectively "Origins", "Dynamics", "Symmetries", and "Scales". The emphasis is conceptual - the aim is to build the theory up systematically from some clearly stated foundational concepts - and therefore to a large extent anti-historical, but two historical Chapters ("Origins") are included to situate quantum field theory in the larger context of modern physical theories. The three remaining sections of the book follow a step by step reconstruction of this framework beginning with just a few basic assumptions: relativistic invariance, the basic principles of quantum mechanics, and the prohibition of physical action at a distance embodied in the clustering principle. The "Dynamics" section of the book lays out the basic structure of quantum field theory arising from the sequential insertion of quantum-mechanical, relativistic and locality constraints. The central role of symmetries in relativistic quantum field theories is explored in the third section of the book, while in the final section, entitled "Scales", we explore in detail the feature of quantum field theories most critical for their enormous phenomenological success - the scale separation property embodied by the renormalization group properties of a theory defined by an effective local Lagrangian.

Engaging Crystallization in Qualitative Research - Laura L. Ellingson 2009 Drawing upon her multi-award winning research and book using crystallization, Laura Ellingston presents a step-by-step guide to employing this cutting-edge methodology in qualitative research.
Social Science Research - Anol Bhattacherjee 2012-04-01 This book is designed to introduce doctoral and

graduate students to the process of conducting scientific research in the social sciences, business, education, public health, and related disciplines. It is a one-stop, comprehensive, and compact source for foundational concepts in behavioral research, and can serve as a stand-alone text or as a supplement to research readings in any doctoral seminar or research methods class. This book is currently used as a research text at universities on six continents and will shortly be available in nine different languages.

How People Learn II - National Academies of Sciences, Engineering, and Medicine 2018-09-27 There are many reasons to be curious about the way people learn, and the past several decades have seen an explosion of research that has important implications for individual learning, schooling, workforce training, and policy. In 2000, How People Learn: Brain, Mind, Experience, and School: Expanded Edition was published and its influence has been wide and deep. The report summarized insights on the nature of learning in school-aged children; described principles for the design of effective learning environments; and provided examples of how that could be implemented in the classroom. Since then, researchers have continued to investigate the nature of learning and have generated new findings related to the neurological processes involved in learning, individual and cultural variability related to learning, and educational technologies. In addition to expanding scientific understanding of the mechanisms of learning and how the brain adapts throughout the lifespan, there have been important discoveries about influences on learning, particularly sociocultural factors and the structure of learning environments. How People Learn II: Learners, Contexts, and Cultures provides a much-needed update incorporating insights gained from this research over the past decade.

The book expands on the foundation laid out in the 2000 report and takes an in-depth look at the constellation of influences that affect individual learning. How People Learn II will become an indispensable resource to understand learning throughout the lifespan for educators of students and adults.

David and Goliath - Malcolm Gladwell 2013-10-01 Explore the power of the underdog in Malcolm Gladwell's dazzling examination of success, motivation, and the role of adversity in shaping our lives, from the bestselling author of The Bomber Mafia. Three thousand years ago on a battlefield in ancient Palestine, a shepherd boy felled a mighty warrior with nothing more than a stone and a sling, and ever since then the names of David and Goliath have stood for battles between underdogs and giants. David's victory was improbable and miraculous. He shouldn't have won. Or should he have? In David and Goliath, Malcolm Gladwellchallenges how we think about obstacles and disadvantages, offering a new interpretation of what it means to be discriminated against, or cope with a disability, or lose a parent, or attend a mediocre school, or suffer from any number of other apparent setbacks. Gladwell begins with the real story of what happened between the giant and the shepherd boy those many years ago. From there, David and Goliath examines Northern Ireland's Troubles, the minds of cancer researchers and civil rights leaders, murder and the high costs of revenge, and the dynamics of successful and unsuccessful classrooms—all to demonstrate how much of what is beautiful and important in the world arises from what looks like suffering and adversity. In the tradition of Gladwell's previous bestsellers—The Tipping Point, Blink, Outliers and What the Dog Saw—David and Goliath draws upon history, psychology, and powerful storytelling to reshape the way we think of the world around

us.

An Equation for Every Occasion - John M. Henshaw 2016-06-15
Smartly conceived and fast paced, his book offers something for anyone curious about math and its impacts.

Nonlinear Optics of Photonic Crystals and Meta-Materials - Andrea Banfi 2016-02-23
Jet physics is an incredibly rich subject detailing the narrow cone of hadrons and other particles produced by the hadronization of a quark or gluon in a particle physics or heavy ion experiment. This book is a general overview of jet physics for scientists not directly involved in the field. It presents the basic experimental and theoretical problems arising when dealing with jets, and describing the solutions proposed in recent years.

Wholeness and the Implicate Order - David Bohm 2005-07-12
David Bohm was one of the foremost scientific thinkers and philosophers of our time. Although deeply influenced by Einstein, he was also, more unusually for a scientist, inspired by mysticism. Indeed, in the 1970s and 1980s he made contact with both J. Krishnamurti and the Dalai Lama whose teachings helped shape his work. In both science and philosophy, Bohm's main concern was with understanding the nature of reality in general and of consciousness in particular. In this classic work he develops a theory of quantum physics which treats the totality of existence as an unbroken whole. Writing clearly and without technical jargon, he makes complex ideas accessible to anyone interested in the nature of reality.

Mathematics for Computer Science - Eric Lehman 2017-03-08
This book covers elementary discrete mathematics for computer science and engineering. It emphasizes mathematical definitions and proofs as well as applicable methods. Topics include formal logic notation, proof methods; induction, well-ordering; sets,

relations; elementary graph theory; integer congruences; asymptotic notation and growth of functions; permutations and combinations, counting principles; discrete probability. Further selected topics may also be covered, such as recursive definition and structural induction; state machines and invariants; recurrences; generating functions.

Death from the Heavens - Kenneth P. Werrell 2009
"This book is the first to take a comprehensive look at the history of strategic bombing from its beginnings to the present. Written by a historian who is also an expert on the technology of bombing and its application, the work covers the theory, the hardware, and the operations of strategic bombing ... Although his book is dominated by aircraft, it also covers air-to-surface and surface-to-air missiles. This study offers a critical analysis of strategic bombing and concludes by calling into question the value of this type of warfare"--Jacket.

An Introduction to Regge Theory and High Energy Physics - P. D. B. Collins 1977
This book presents an extended introduction to the theory of hadrons, the elementary particles which occur in the atomic nucleus.

An Introduction to Modern Stellar Astrophysics - Dale A. Ostlie 2007
This exciting text opens the entire field of modern astrophysics to the reader by using only the basic tools of physics. Designed for the junior- level astrophysics course, each topic is approached in the context of the major unresolved questions in astrophysics. The core chapters have been designed for a course in stellar structure and evolution, while the extended chapters provide additional coverage of the solar system, galactic structure, dynamics, evolution, and cosmology.

The Equations of Life - Charles S. Cockell 2018-06-19
A groundbreaking argument for why alien life will evolve to

be much like life here on Earth We are all familiar with the popular idea of strange alien life wildly different from life on earth inhabiting other planets. Maybe it's made of silicon! Maybe it has wheels! Or maybe it doesn't. In The Equations of Life, biologist Charles S. Cockell makes the forceful argument that the laws of physics narrowly constrain how life can evolve, making evolution's outcomes predictable. If we were to find on a distant planet something very much like a lady bug eating something like an aphid, we shouldn't be surprised. The forms of life are guided by a limited set of rules, and as a result, there is a narrow set of solutions to the challenges of existence. A remarkable scientific contribution breathing new life into Darwin's theory of evolution, The Equations of Life makes a radical argument about what life can--and can't--be.

The Black Book of Quantum Chromodynamics - John Campbell 2018
This title provides an in-depth introduction to the particle physics of current and future experiments at particle accelerators. The text provides the reader with an overview of practically all aspects of the strong interaction necessary to understand and appreciate modern particle phenomenology at the energy frontier.

Global Trends 2030 - National Intelligence Council (U.S.) 2012
This report is intended to stimulate thinking about the rapid and vast geopolitical changes characterizing the world today and possible global trajectories over the next 15 years. As with the NIC's previous Global Trends reports, we do not seek to predict the future, which would be an impossible feat, but instead provide a framework for thinking about possible futures and their implications. In-depth research, detailed modeling and a variety of analytical tools drawn from public, private and academic sources were employed in the production of Global Trends 2030. NIC

leadership engaged with experts in nearly 20 countries, from think tanks, banks, government offices and business groups, to solicit reviews of the report.

Writing Literature Reviews - Jose L. Galvan 2017-04-05 Guideline 12: If the Results of Previous Studies Are Inconsistent or Widely Varying, Cite Them Separately *Construction Calculations Manual* - Sidney M Levy 2011-09-19 Construction Calculations is a manual that provides end users with a comprehensive guide for many of the formulas, mathematical vectors and conversion factors that are commonly encountered during the design and construction stages of a construction project. It offers readers detailed calculations, applications and examples needed in site work, cost estimation, piping and pipefitting, and project management. The book also serves as a refresher course for some of the formulas and concepts of geometry and trigonometry. The book is divided into sections that present the common components of construction. The first section of the books starts with a refresher discussion of unit and systems measurement; its origin and evolution; the standards of length, mass and capacity; terminology and tables; and notes of metric, U.S, and British units of measurements. The following concepts are presented and discussed throughout the book: Conversion tables and formulas, including the Metric Conversion Law and conversion factors for builders and design professionals Calculations and formulas of geometry, trigonometry and physics in construction Rudiments of excavation, classification, use of material, measurement and payment Soil classification and morphology, including its physicochemical properties Formulas and calculations needed for soil tests and evaluations and for the design of retaining structures Calculations relating

to concrete and masonry Calculations of the size/weight of structural steel and other metals Mechanical properties of wood and processing of wood products Calculations relating to sound and thermal transmission Interior finishes, plumbing and HVAC calculations Electrical formulas and calculations Construction managers and engineers, architects, contractors, and beginners in engineering, architecture, and construction will find this practical guide useful for managing all aspects of construction. Work in and convert between building dimensions, including metric Built-in right-angle solutions Areas, volumes, square-ups Complete stair layouts Roof, rafter and framing solutions Circle: arcs, circumference, segments

Reign the Earth - A. C. Gaughen 2018-01-30 With powerful magic that manipulates the natural world, dangerously cunning royalty, and heart-stopping romance, this new sweeping fantasy series is perfect for fans of Sabaa Tahir. "Another fantasy romance in the vein of books by Sabaa Tahir, Renee Ahdieh. . . . Shalia matures from a frightened girl in a foreign land to a woman unwilling to allow her destiny or desires to be controlled by the men around her." - School Library Journal "I will be thinking about Shalia's strength and fearlessness (and swooning over the slow-burn romance) as I anxiously await book two!" - Erin Bowman, author of Vengeance Road Shalia is a proud daughter of the desert, but after years of devastating war with the adjoining kingdom, her people are desperate for an end to the violence that has claimed so many of their loved ones. Willing to trade her freedom to ensure the safety of her family, Shalia becomes Queen of the Bone Lands, a country where magic is outlawed and the Elementae--those that can control earth, air, fire and water--are traitors, subject to torture . . . or worse. Before she is even crowned, Shalia discovers that she can bend the earth to her will. Trapped

between her husband's irrational hatred of the Elementae and a dangerous rebellion led by her own brother, Shalia must harness her power and make an impossible choice: save her family, save the Elementae, or save herself.

No bullshit guide to math and physics - Ivan Savov 2014-08-07
Often calculus and mechanics are taught as separate subjects. It shouldn't be like that. Learning calculus without mechanics is incredibly boring. Learning mechanics without calculus is missing the point. This textbook integrates both subjects and highlights the profound connections between them. This is the deal. Give me 350 pages of your attention, and I'll teach you everything you need to know about functions, limits, derivatives, integrals, vectors, forces, and accelerations. This book is the only math book you'll need for the first semester of undergraduate studies in science. With concise, jargon-free lessons on topics in math and physics, each section covers one concept at the level required for a first-year university course. Anyone can pick up this book and become proficient in calculus and mechanics, regardless of their mathematical background.

Global Trends 2030 - Office of the Director of National Intelligence Council 2017-03-11
This publication covers global megatrends for the next 20 years and how they will affect the United States. This is the fifth installment in the National Intelligence Council's series aimed at providing a framework for thinking about possible futures and their implications. The report is intended to stimulate strategic thinking about the rapid and vast geopolitical changes characterizing the world today and possible global trajectories during the next 15-20 years by identifying critical trends and potential discontinuities. The authors distinguish between megatrends, those factors that will likely occur under any scenario, and game-changers,

critical variables whose trajectories are far less certain. NIC 2012-001. Several innovations are included in Global Trends 2030, including: a review of the four previous Global Trends reports, input from academic and other experts around the world, coverage of disruptive technologies, and a chapter on the potential trajectories for the US role in the international system and the possible the impact on future international relations. Table of Contents:

Corner by 2030? 79 Latin America: More Prosperous but Inherently Fragile 81 The Impact of New Technologies 83 Information Technologies 83 AUTOMATION AND MANUFACTURING TECHNOLOGIES 87 Resource Technologies 90 Health Technologies 95 The Role of the United States 98 Steady US Role 98 Multiple Potential Scenarios for the United States' Global Role 101 Alternative Worlds 107 Stalled Engines 110 FUSION 116 Gini-out-of-the-Bottle 122 Nonstate World 128 Acknowledgements 134 GT2030 Blog References 137 Audience: Appropriate for anyone, from businesses to banks, government agencies to start-ups, the technology sector to the teaching sector, and more. This publication helps anticipate where the world will be: socially, politically, technologically, and culturally over the next few decades. Keywords: Global Trends 2030 Alternative Worlds, global trends 2030, Global Trends series, National Intelligence Council, global trajectories, global megatrends, geopolitics, geopolitical changes

No Bullshit Guide to Linear Algebra - Ivan Savov 2020-10-25 This textbook covers the material for an undergraduate linear algebra course: vectors, matrices, linear transformations, computational techniques, geometric constructions, and theoretical foundations. The explanations are given in an informal conversational tone. The book also contains 100+ problems and exercises with answers and solutions. A special feature of this textbook is the prerequisites chapter that covers topics from high school math, which are necessary for learning linear algebra. The presence of this chapter makes the book suitable for beginners and the general audience-readers need not be math experts to read this book. Another unique aspect of the book are the applications chapters (Ch 7, 8, and 9) that discuss applications of linear algebra to engineering, computer science, economics,

chemistry, machine learning, and even quantum mechanics. *Seeing Like a State* - James C. Scott 2020-03-17 "One of the most profound and illuminating studies of this century to have been published in recent decades."—John Gray, New York Times Book Review Hailed as "a magisterial critique of top-down social planning" by the New York Times, this essential work analyzes disasters from Russia to Tanzania to uncover why states so often fail—sometimes catastrophically—in grand efforts to engineer their society or their environment, and uncovers the conditions common to all such planning disasters. "Beautifully written, this book calls into sharp relief the nature of the world we now inhabit."—New Yorker "A tour de force."— Charles Tilly, Columbia University

Virtual Synthesis of Nanosystems by Design - Liudmila Pozhar 2015-02-20 This is the only book on a novel fundamental method that uses quantum many body theoretical approach to synthesis of nanomaterials by design. This approach allows the first-principle prediction of transport properties of strongly spatially non-uniform systems, such as small QDs and molecules, where currently used DFT-based methods either fail, or have to use empirical parameters. The book discusses modified algorithms that allow mimicking experimental synthesis of novel nanomaterials---to compare the results with the theoretical predictions--and provides already developed electronic templates of sub-nanoscale systems and molecules that can be used as components of larger materials/fluidic systems. The only publication on quantum many body theoretical approach to synthesis of nano- and sub-nanoscale systems by design. Novel and existing many-body field theoretical, computational methods are developed and used to realize the theoretical predictions for materials for IR sensors, light sources,

information storage and processing, electronics, light harvesting, etc. Novel algorithms for EMD and NEMD molecular simulations of the materials' synthesis processes and charge-spin transport in synthesized systems are developed and described.

Includes the first ever models of Ni-O quantum wires supported by existing experimental data. All-inclusive analysis of existing experimental data versus the obtained theoretical predictions and nanomaterials templates.