

March 2014 Physics Paper Memorandum

Though divided by race, class, gender, and party, Catholics have influenced issues of war and peace, social justice, and life and death among modern presidents in a profound way, from President Kennedy's election to John Kerry's run. Assured destruction during the Ballistic Missile Culture of the U.S. Air Force documents the rapid development of nuclear ballistic missiles in the United States and their equally swift demise after the Cuban Missile Crisis, revealing how these drastic changes negatively influenced both the Air Force and the missile community. David W. Bath contends that the struggle to create and control nuclear ballistic missiles threatened both the dominance of the United States during an intensifying Cold War and the strategic airpower mission of the newly created Air Force. The book details the strenuous efforts required to create and prepare a missile arsenal before the Cuban Missile Crisis, which occurred only five years after the first missile was declared operational. It uses the personal recollections of former missileers and the professional military education theses they wrote to highlight some of the concerns that have faced the missileers who operated and worked on these powerful weapons from 1957 to the present. The highlight of the book, however, is the personal stories of the missileers who served during the missile crisis, revealing the efforts that they went to in order to prepare these unique and untried weapons for what many thought might become the third world war.

It was at the height of the Cold War, in the summer of 1950, when Bruno Pontecorvo mysteriously vanished behind the Iron Curtain. Who was he, and what caused him to disappear? Was he simply a physicist, or also a spy and communist radical? A protégé of Enrico Fermi, Pontecorvo was one of the most promising nuclear physicists in the world. He spent years hunting for the Higgs boson of his day—the neutrino—a nearly massless particle thought to be essential to the process of particle decay. His work on the Manhattan Project helped to usher in the nuclear age, and confirmed his reputation as a brilliant physicist. Why, then, would he disappear as he stood on the cusp of true greatness, perhaps even the Nobel Prize? In Half-Life, physicist and author David W. Bath tells the untold story of Pontecorvo's life, based on unprecedented access to Pontecorvo's friends and family and the Russian scientists with whom he would later work. Bath takes a microscope to Pontecorvo's life, combining a thorough biography of one of the most important scientists of the twentieth century with the drama of Cold War espionage. With all the elements of Cold War thriller—classified atomic research, an infamous double agent, a possible kidnapping by Soviet operatives—Half-Life is a history of nuclear physics at perhaps its most powerful: when it created the bomb.physics at perhaps its most powerful: when it created the bomb.

The King of stones, valued since antiquity for their unrivaled hardness, diamonds today are both desired and deplored. Once faceted and polished they glitter on the fingers of brides-to-be and in the ornaments of the super-rich, but their extraction from some of the world's poorest countries remains contentious. Immensely valuable for their size, diamonds can be easily hidden and transported, making them perfect contraband. Diamonds have been widely used in industry since the nineteenth century and have long been valued for their pharmaceutical and prophylactic properties. This entertaining and richly illustrated book examines the history of the diamond trade through the centuries from India and Brazil to South Africa and Europe and investigates what happens to diamonds once they reach the cutters and polishers. Marcia Poinon takes the reader on a unique tour of the ways in which the quadrahedron diamond shape has inspired design, architecture, and painting, from the symbolism of medieval manuscripts to modern-day graffiti. She questions the etiquette of engagement rings, and she reminds us why and how lost, stolen, or cursed diamonds create suspense in so many classic novels and films. This compelling and fascinating account of the history of sparklers around the world will appeal to all who covet, as well as all who despise, the unparalleled brilliance and glitter of the diamond.

Complexity, Security and Civil Society in East Asia

Quantum Legacies

American Catholics and American Presidents, 1960-2004

The American Doomsday Machine, 1945-1960

Game-Changing Technologies That Failed

Investing in Science

Domesticating the Invisible examines how postwar notions of form developed in response to newly perceived environmental threats, in turn inspiring artists to model plastic composition on natural systems often invisible to the human eye. Melissa S. Ragain focuses on the history of art education in Cambridge, Massachusetts, to understand how an environmental approach to form inspired new art programs at Harvard and MIT. As they embraced scientific theories of composition, these institutions also cultivated young artists as environmental agents who could influence urban design and contribute to an ecologically sensitive public sphere. Ragain combines institutional and intellectual histories to map how the emergency of environmental crisis altered foundational modernist assumptions about form, transforming questions about aesthetic judgment into questions about an ethical relationship to the environment.

A collection of essays on Dylan Thomas, reading culture and his place in modernist studiesReclining quietly with a book; an ear glued to the Hi-Fi; sifting a library stack; the TV flickering; a website gone live Few poets have inspired such remarkable scenes and modes of interpretation as Dylan Thomas. Our means of access and response to his work have never been more eclectic, and this collection sheds new light on what it means to 'read' such a various art. In thinking beyond the parameters of life writing and lingering interpretative communities, Reading Dylan Thomas attends in detail to the problems and pleasures of deciphering Thomas in the twenty-first century, teasing out his debts and effects, tracing his influence on later artists, and suggesting ways to understand his own idiosyncratic reading practices. From short stories to memoirs, poems to broadcasts, letters to films, manuscripts to paintings, the material considered in this volume lays the ground for a new consideration of Thomas's formal versatility, and his distinctive relation to literary modernism. Key FeaturesEvaluates the breadth of Thomas's creative practice, from short stories to memoirs, poems to broadcasts, letters to films, manuscripts to paintingsDraws on recently discovered manuscripts and archival material in Britain and North AmericaA distinctive combination of cultural history, close reading, and critical theory

A series of engaging essays that explore iconic moments of discovery and debate in physicists' ongoing quest to understand the quantum world. The ideas at the root of quantum theory remain stubbornly, famously bizarre: a solid world reduced to puffs of probability; particles that tunnel through walls; cats suspended in zombie-like states, neither alive nor dead; and twinned particles that share entangled fates. For more than a century, physicists have grappled with these conceptual uncertainties while enmeshed in the larger uncertainties of the social and political worlds around them, a time pocked by the rise of fascism, cataclysmic world wars, and a new nuclear age. In Quantum Legacies, David Kaiser introduces readers to iconic episodes in physicists' still-unfolding quest to understand space, time, and matter at their most fundamental. In a series of vibrant essays, Kaiser takes us inside moments of discovery and debate among the great minds of the era—Albert Einstein, Erwin Schrödinger, Stephen Hawking, and many more who have indelibly shaped our understanding of nature—as they have tried to make sense of a messy world. Ranging across space and time, the episodes span the heady 1920s, the dark days of the 1930s, the turbulence of the Cold War, and the peculiar political realities that followed. In those eras as in our own, researchers' ambition has often been to transcend the vagaries of here and now, to contribute lasting insights into how the world works that might reach beyond a given researcher's limited view. In Quantum Legacies, Kaiser unveils the difficult and unsteady work required to forge some shared understanding between individuals and across generations, and in doing so, he illuminates the deep ties between scientific exploration and the human condition.

Containing the proceedings of the symposium held by the American Academy of Arts and Sciences to celebrate the 100th anniversary of the birth of Niels Bohr, this collection was first published in 1988. More than any other individual, Bohr was responsible for the development of quantum mechanics and for many of its applications in the pursuit of fundamental understanding of physical reality. In addition to his unique role in the discovery and elucidation of quantum theory, Bohr led the study of the fission of nuclei and was greatly concerned with the impact of the existence of the atomic bomb in the post-World War II era. This unique volume provides a panoramic view of modern physics, some of the philosophical issues associated with quantum theory, the impact of this momentous scientific development on the political circumstance of the Cold War Era and the qualities of a superlative scientist.

Virtual Fundamental Cycles in Symplectic Topology

The Rise and Fall of the Superconducting Super Collider

History, Experience, and Prospects for Reform

Publications Combined: Russia's Regular And Special Forces In The Regional And Global War On Terror

How We Teach Science

Tunnel Visions

Building the Ballistic Missile Culture of the U.S. Air Force

This book constitutes the refereed proceedings of the 8th International Conference on Quantum Interaction, QI 2014, held in Filzbach, Switzerland, in June/July 2014. The 19 papers together with 20 invited keynotes presented in this book were carefully selected from 22 submissions. Quantum Interaction has developed into an emerging interdisciplinary area of science combining research topics in fundamental issues, semantic and memory, decision making, games, politics and social aspects, non-locality and entanglement.

Despite an enduring belief that science should be taught, there has been no enduring consensus about how or why. This is especially true when it comes to teaching scientific process. John Radolph shows that how we think about and teach science will either sustain or thwart future innovation, and determine how science is perceived by the public.

A proposal for using cost-benefit analysis to evaluate the socioeconomic impact of public investment in large scientific projects. Large particle accelerators, outer space probes, genomics platforms: all are scientific enterprises managed through the new form of the research infrastructure, in which communities of scientists collaborate across nations, universities, research institutions, and disciplines. Such large projects are often publicly funded, with no accepted way to measure the benefits to society of these investments. In this book, Massimo Florio suggests the use of cost-benefit analysis (CBA) to evaluate the socioeconomic impact of public investment in large and costly scientific projects. The core concept of CBA of any infrastructure is to undertake the consistent intertemporal accounting of social welfare effects using the available information. Florio develops a simple framework for such accounting in the research infrastructure context. He then offers a systematic analysis of the benefits in terms of the social agents involved. He measures the benefits to scientists, students, and postdoctoral researchers; the investment in firms of knowledge spillovers; the benefits to users of information technology and science-based innovation; the welfare effects on the general public of cultural services provided by RIs; and the willingness of taxpayers to fund scientific knowledge creation. Finally, Florio shows how these costs and benefits can be expressed in the form of stochastic net present value and other summary indicators.

Emergency War Plan examines the theory and practice of American nuclear deterrence and its evolution during the Cold War. Previous examinations of nuclear strategy during this time have, for the most part, categorized American efforts as "massive retaliation" and "mutually assured destruction," blunt instruments to be casually dismissed in favor of more flexible approaches or summed up in inflammatory and judgmental terms like "MAD." These descriptors evolved into slogans, and any nuanced discussion of the efficacy of the actual strategies withered due to a variety of political and social factors. Drawing on newly released weapons effects information along with new information about Soviet capabilities as well as risky and covert espionage missions, Emergency War Plan provides a completely new examination of American nuclear deterrence strategy during the first fifteen years of the Cold War, the first such study since the 1980s. Ultimately what emerges is a picture of a gargantuan and potentially devastating enterprise that was understood at the time by the public in only the vaguest terms but that was not as out of control as has been alleged and was more nuanced than previously understood.

Engineering the Environment

Physicians and the Quest for Climate Control in the Cold War

Arctic Shipping

Beyond Control

How to Lead Your Zombie Organization Back to Life

The Divided Life of Bruno Pontecorvo, Physicist or Spy

Space and Dynamical Control The Embedded Model Control Approach provides a uniform and systematic way of approaching space engineering control problems from the standpoint of model-based control, using state-space equations as the key paradigm for simulation, design and implementation. The book introduces the Embedded Model Control methodology for the design and implementation of attitude and orbit control systems. The logic architecture is organized around the embedded model of the spacecraft and its surrounding environment. The model is compelled to include disturbance dynamics as a repository of the uncertainty that the control law must reject to meet attitude and orbit requirements within the uncertainty class. The source of the real-time uncertainty estimation/prediction is the model error signal, as it encodes the residual discrepancies between spacecraft measurements and model output. The embedded model and the uncertainty estimation feedback (noise estimator in the book) constitute the state predictor feeding the control law. Asymptotic pole placement (exploiting the asymptotes of closed-loop transfer functions) is the way to design and tune feedback loops around the embedded model (state predictor, control law, reference generator). The design versus the uncertainty class is driven by analytic stability and performance inequalities. The method is applied to several attitude and orbit control problems. The book begins with an extensive introduction to attitude geometry and algebra and ends with the core themes: state-space dynamics and Embedded Model Control. Fundamentals of orbit, attitude and environment dynamics are treated giving emphasis to state-space formulation, disturbance dynamics, state feedback and prediction, closed-loop stability. Sensors and actuators are treated giving emphasis to their dynamics and modelling of measurement errors. Numerical tables are included and their data employed for numerical simulations. Orbit and attitude control problems of the European GOCE mission are the inspiration of numerical exercises and simulations. The suite of the attitude control modes of a GOCE-like mission is designed and simulated around the so-called mission state predictor. Solved and unsolved exercises are included within the text - and not separated at the end of chapters - for better understanding, training and application. Simulated results and their graphical plots are developed through MATLAB/Simulink code.

How do meteorologists forecast the next day's, the next month's weather? Are some forecasts more likely to be accurate than others, and why? Making Sense of Weather and Climate takes readers through key topics in atmospheric physics and presents a cogent view of how weather relates to climate, particularly climate-change science. It is the perfect book for amateur meteorologists and weather enthusiasts, and for anyone whose livelihood depends on navigating the weather's twists and turns. Making Sense of Weather and Climate begins by explaining the essential mechanics and characteristics of this fascinating science. The noted physics author Mark Denny also defines the crucial differences between weather and climate, and then develops from this basic knowledge a sophisticated yet clear portrait of their relation. Throughout, Denny elaborates on the role of weather forecasting in guiding politics and other aspects of human civilization. He also follows forecasting's effect on the economy. Denny's exploration of the science and history of a phenomenon we have long tried to master makes this book a unique companion for anyone who wants a complete picture of the environment's individual, societal, and planetary impact.

The North American Free Trade Agreement (NAFTA) and its companion agreement, the North American Agreement on Environmental Cooperation (NAAEC), provide important and often underappreciated protection for the environmental laws of the Party states: Canada, Mexico, and the United States. On the twentieth anniversary of NAFTA's ratification, this book assesses the current state of environmental protection under these agreements. Bringing together scholars, practitioners, and regulators from all three Party states, it outlines the scope and process of NAFTA and NAAEC, their impact on specific environmental issues, and paths to reform. It includes analyses of the impact of the agreements on such matters as bioengineered crops in Mexico, assessment of marine environmental effects, potential lessons for China, climate change, and indigenous rights. Together, the chapters of this book represent an important contribution to the global conversation concerning international trade agreements and sustainable development.

Starting in the 1950s, US physicists dominated the search for elementary particles; aided by the association of this research with national security, they held this position for decades. In an effort to maintain their hegemony and track down the elusive Higgs boson, they convinced President Reagan and Congress to support construction of the multibillion-dollar Superconducting Super Collider project in Texas—the largest basic-science project ever attempted. But after the Cold War ended and the estimated SSC cost surpassed ten billion dollars, Congress terminated the project in October 1993. Drawing on extensive archival research, contemporaneous press accounts, and over one hundred interviews with scientists, engineers, government officials, and others involved, Tunnel Visions tells the riveting story of the aborted SSC project. The authors examine the complex, interrelated causes for its demise, including problems of large-project management, continuing cost overruns, and lack of foreign contributions. In doing so, they ask whether Big Science has become too large and expensive, including whether academic scientists and their government overseers can effectively manage such an enormous undertaking.

Spectacular Flops

Memorandum

Niels Bohr: Physics and the World

Building Smarter Organizations

Diamond Histories

Inventing a New Astronomy at the South Pole

Enron and the Culture of American Capitalism

Enron and the Culture of American Capitalism personnel are some of the most highly trained people in the military, with a job description that spans defusing unexploded ordnance to protecting VIP's and state dignitaries. EOD are also one of the first military groups to work with robots every day. These robots have become an increasingly important tool in EOD work, enabling people to work at safer distances in many dangerous situations. Based on exploratory research investigating interactions between EOD personnel and the robots they use, this study richly describes the nuances of these reciprocal influences, especially those related to operator emotion associated with the robots. In particular, this book examines the activities, processes and contexts that influence or constrain everyday EOD human-robot interactions, what human factors are shaping the (robotic) technology and how people and culture are being changed by using it. The findings from this research have implications for future personnel training, and the refinement of robot design considerations for many fields that rely on critical small group communication and decision-making skills. From agriculture to big business, from medicine to politics, The Cigarette Century is the definitive account of how smoking came to be so deeply implicated in our culture, science, policy, and law. No product has been so heavily promoted or has become so deeply entrenched in American consciousness. The Cigarette Century shows in striking detail how one ephemeral (and largely useless) product came to play such a dominant role in so many aspects of our lives—and deaths.

Many technologies begin life as someone's vision of an ambitious, perhaps audacious, technology that is expected to have a revolutionary impact on consumers—whether families, companies, or societies. However, if this highly touted technology fails "prematurely" at some point in its life history, it becomes a spectacular flop. Employing a behavioral perspective, this book presents a sample of twelve spectacular flops encompassing the past three centuries—ranging from the world's first automobile to the nuclear-powered bomber. Because technologies may fail from many different causes, spectacular flops pose a special challenge to the author's long-term project of furnishing generalizations about technological change. Instead of constructing generalizations that apply to all spectacular flops, this book provides limited generalizations that pertain to particular groups of technologies based on parameters such as "long-term development projects" and "one-off projects." The reader need have no prior familiarity with the technologies because basic principles are introduced as needed.

The use of using the moduli space of pseudo-holomorphic curves on a symplectic manifold was introduced by Mikhail Gromov in 1985. From the appearance of Gromov's original paper until today this approach has been the most important tool in global symplectic geometry. To produce numerical invariants of these manifolds using this method requires constructing a fundamental cycle associated with moduli spaces. This volume brings together three approaches to constructing the "virtual" fundamental cycle for the moduli space of pseudo-holomorphic curves. All approaches are based on the idea of local Kuratishi charts for the moduli space. Workers in the field will get a comprehensive understanding of the details of these constructions and the assumptions under which they can be made. These techniques and results will be essential in further applications of this approach to producing invariants of symplectic manifolds.

The Embedded Model Control Approach

What's Changed, and Why It Matters

The Cigarette Century

Culture and Human-Robot Interaction in Militarized Spaces

What They Wishd For

A History of ENRON

The Mississippi River's New Channel to the Gulf of Mexico

The IceCube Observatory has been called the "weirdest" of the seven wonders of modern astronomy by Scientific American. In The Telescope in the Ice, Mark Bowen tells the amazing story of the people who built the instrument and the science involved. Located near the U. S. Amundsen-Scott Research Station at the geographic South Pole, IceCube is unlike most telescopes in that it is not designed to detect light. It employs a cubic kilometer of diamond-clear ice, more than a mile beneath the surface, to detect an elementary particle known as the neutrino. In 2010, it detected the first extraterrestrial high-energy neutrinos and thus gave birth to a new field of astronomy. IceCube is also the largest particle physics detector ever built. Its scientific goals span not only astrophysics and cosmology but also pure particle physics. And since the neutrino is one of the strangest and least understood of the known elementary particles, this is fertile ground. Neutrino physics is perhaps the most active field in particle physics today, and IceCube is at the forefront. The Telescope in the Ice is, ultimately, a book about people and the thrill of the chase: the struggle to understand the neutrino and the pioneers and inventors of neutrino astronomy. It is a success story.

"A riveting narrative of the Atomic Age—from x-rays and Marie Curie to the Nevada Test Site and the 2011 meltdown in Japan—written by the prizewinning and bestselling author of Rocket Men. Radiation is a complex and paradoxical concept: staggering amounts of energy flow from seemingly inert rock and that energy is both useful and dangerous. While nuclear energy has become an indispensable part of our lives, it has also triggered the most terrifying biological, chemical, and cellular mayhem. Written with a biographer's passion, Craig Nelson unlocks one of the great mysteries of the universe in a work that is both tragic and triumphant. From the end of the nineteenth century through the use of the atomic bombn World War II to the twenty-first century's confrontation with the dangers of nuclear power, Nelson illuminates a pageant of fascinating historical figures: Enrico Fermi, Marie and Pierre Curie, Albert Einstein, FDR, Robert Oppenheimer, and Ronald Reagan, among others. He reveals many little-known details, including how Jewish refugees fleeing Hitler transformed America from a country that created light bulbs and telephones into one that split atoms; how the most grotesque weapon ever invented could realize Alfred Nobel's lifelong dream of global peace; how emergency workers and low-level utility employees fought to contain a run-amok nuclear reactor, while wondering if they would live or die. Brilliantly fascinating and remarkably accessible, The Age of Radiance traces mankind's complicated and difficult relationship with the dangerous power it discovered and made part of civilization"--

Over 2,400 total pages ... Russian outrage following the September 2004 hostage disaster at North Ossetia's Beslan Middle School No.1 was reflected in many ways throughout the country. The 52-hour debacle resulted in the death of some 344 civilians, including more than 170 children, in addition to unprecedented losses of elite Russian security forces and the dispatch of most mechanized brigades to Chechnya. It quickly became clear, as well, that Russian authorities had been less than candid about the number of hostages held and the extent to which they were prepared to deal with the situation. Amid grief, calls for retaliation, and demands for reform, one of the more telling reactions in terms of hardening public perspectives appeared in a national poll a mere several days after the event. Some 54% of Russians polled specifically judged the Russian security forces and the police to be corrupt and thus complicit in the failure to deal adequately with terrorism, while 44% thought that no lessons for the future would be learned from the tragedy. This pessimism was the consequence not just of the Beslan terrorism, but the accumulation of years of often spectacular failures by Russian special operations forces (SOF, in the apt US military acronym). A series of Russian SOF counterterrorism mishaps, misjudgments, and failures in the 1990s and continuing to the present have made the Kremlin's special operations establishment in 2005 appear much like Russia's old MI space station—wired together, unpredictable, and subject to sudden, startling failures. But Russia continued to maintain and expand a large, variegated special operations establishment which had borne the brunt of combat actions in Afghanistan, Chechnya, and other trouble spots, and was expected to serve as the nation's principal shield against terrorism in all its forms. Known since Soviet days for tough personnel, personal bravery, demanding training, and a certain rough or brutal competence that not infrequently violated international human rights norms, it was supposed that Russian special operations forces—steeped in their world of "threats to the state" and associated with once-dreaded military and national intelligence services—could make valuable contributions to countering terrorism. The now widely perceived link between "corrupt" special forces on the one hand, and counterterrorism failures on the other, reflected the further erosion of Russia's national security infrastructure in the eyes of both Russian citizens and international observers. There have been other, more ambiguous, high-profile uses of Russian SOF activity as well, that have strong internal and external political aspects. These constitute the continuing assertions from Russian media, the judicial system, and other Federal agencies and officials that past and current members of the SOF establishment have organized to pursue interests other than those publicly declared by the state or allowed under law. This includes especially the alleged intent to punish by assassination those individuals and groups that they believe have betrayed Russia. The murky nature of these alleged activities has formed a backdrop to other problems in the special units.

Beyond Control reveals the Mississippi as a waterway of change, unnaturally confined by ever-larger levees and control structures. During the great flood of 1973, the current scored a hole beneath the main structure near Baton Rouge and enlarged a pre-existing football-field-size crater. That night the Mississippi River nearly changed its course for a shorter and steeper path to the sea. Such a map-changing reconfiguration of the country's largest river would bear national significance as well as disastrous consequences for New Orleans and towns like Morgan City, at the mouth of the Atchafalaya River. Since 1973, the US Army Corps of Engineers Control Complex at Old River has kept the Mississippi from jumping out of its historic channel and plunging through the Atchafalaya Basin to the Gulf of Mexico. Beyond Control traces the history of this phenomenon, beginning with a major channel shift around 3,000 years ago. By the time European colonists began to explore the Lower Mississippi Valley, a unique confluence of waterways had formed where the Red River joined the Mississippi, and the Atchafalaya River flowed out into the Atchafalaya Basin. A series of human alterations to this potentially volatile web of rivers, starting with a bend cutoff in 1831 by Captain Henry Miller Shreve, set the forces in motion for the Mississippi's move into the Atchafalaya Basin. Told against the backdrop of the Lower Mississippi River's impending diversion, the book's chapters chronicle historic floods, rising flood crests, a changing strategy for flood protection, and competing interests in the management of the Old River outlet. Beyond Control is both a history and a close look at an inextinguishable, living process happening now in the twenty-first century.

100 Years of Fundamental Theoretical Physics in the Palm of Your Hand

NAFTA and Sustainable Development

Sixth European Conference on Controlled Fusion and Plasma Physics, Moscow, USSR, July 30-August 4, 1973: Contributed papers

Social Cost-Benefit Analysis of Research Infrastructures

Foreign Policies and the Korean Peninsula

Emergency War Plan

Complexity, Security and Civil Society in East Asia offers the latest understanding of complex global problems in the region, including nuclear weapons, urban insecurity, energy, and climate change. Detailed case studies of China, North and South Korea, and Japan demonstrate the importance of civil society and 'civic diplomacy' in reaching shared solutions to these problems in East Asia and beyond. Each chapter describes regional civil society initiatives that tackle complex challenges to East Asia's security. In doing so, the book identifies key pressure points at which civil society can push for constructive changes—especially ones that reduce the North Korean threat to its neighbors. Unusually, this book is both theoretical and practical. Complexity, Security and Civil Society in East Asia presents strategies that can be led by civil society and negotiated by its diplomats to realize peace, security, and sustainability worldwide. It shows that networked civic diplomacy offers solutions to these urgent issues that official 'complex diplomacy' cannot. By providing a new theoretical framework based on empirical observation, this volume is a must read for diplomats, scholars, students, journalists, activists, and individual readers seeking insight into how to solve the crucial issues of our time.

At the time of its collapse in 2001, Enron was one of the largest companies in the world, boasting revenue of over \$108 billion. During the 1990s economic boom, the Houston, Texas-based energy company had diversified into commodities and derivatives trading and many other ventures—some more profitable than others. Lead-up to Enron's demise, it was revealed that the company's financial success was sustained by a creatively planned and well-orchestrated accounting fraud. The story of Enron and its disastrous aftermath has since become a symbol of corporate excess and negligence, named an exceptional event in the annal of American business. With Risk and Reward, Gavriel Benke places Enron's fall within the larger history and culture of late twentieth-century American capitalism. In many ways, Benke argues, Enron was emblematic of the transitions that characterized the era. Like Enron, the American economy had shifted from old industry to the so-called knowledge economy, from goods to finance, and from national to global modes of production. Benke dives deep into the Enron archives, analyzing company newsletters, board meeting minutes, and courtroom transcripts to chart several interconnected themes across Enron's history: the changing fortunes of Houston; the shifting attitudes toward business strategy, deregulation, and the function of the market among policy makers and business leaders; and the cultural context that accompanied and encouraged these broader political and economic changes. Considered against this backdrop, Enron takes on new significance as a potent reminder of the unaddressed issues still facing national and global economies. Published in cooperation with the William P. Clements Center for Southwest Studies at Southern Methodist University.

*Quantum Legacies*Dispatches from an Uncertain WorldUniversity of Chicago Press

Building Smarter Organizations is the antidote for your zombie organization. Building Smarter Organizations is an actionable survival guide for our complex, uncertain, and digital world. Slow-moving and uncoordinated zombie organizations can change. Utilizing the latest in industry research, Vala-Webb has assembled the complete anti-zombie kit to help you rebuild your organization so it can learn quickly, predict accurately, and execute on decisions effectively using: An "open" mindset that fosters innovation and employee engagement Fast-flow communications with visual work

management Accelerated, collaborative decision making Don't keep stumbling and lurching around. Lead the change and equip your organization to thrive.

How Russia, China, and Iran Are Eroding American Influence Using Time-Tested Measures Short of War

The Routledge Social Science Handbook of AI

The Telescope in the Ice

Reading Dylan Thomas

8th International Conference, QI 2014, Filzbach, Switzerland, June 30 -- July 3, 2014. Revised Selected Papers

Rocks, Ice and Dirty Stones

The Science Behind the Forecasts

This book considers both the present state of Arctic shipping and possible future trends with reference to the various sectors of maritime transportation: cruise tourism, container traffic and bulk shipping. Ports are analysed as tools that support the strategies of coastal states to foster the development of resource extraction, enhance the attractiveness of Arctic shipping lanes and enable the control of maritime activities through coast guard deployment. The aim of this book is to draw a picture of the trends of Arctic shipping. How is traffic evolving in Canada's Arctic, or along the Northern Sea Route? Are there significant differences between bulk and container shipping segments when considering the Arctic market? How are the ports and the hinterland developing and what are the strategies behind those? How is the legal framework shaping the evolution of maritime transportation? The contributors to this book consider all of these questions, and more, as they map out the prospects for Arctic shipping and analyse in detail the development of Arctic shipping as a result of multi-variable interactions. This book will be key reading for industry professionals and post-graduate students alike.

The Routledge Social Science Handbook of AI is a landmark volume providing students and teachers with a comprehensive and accessible guide to the major topics and trends of research in the social sciences of artificial intelligence (AI), as well as surveying how the digital revolution – from supercomputers and social media to advanced automation and robotics – is transforming society, culture, politics and economy. The Handbook provides representative coverage of the full range of social science engagements with the AI revolution, from employment and jobs to education and new digital skills to automated technologies of military warfare and the future of ethics. The reference work is introduced by editor Anthony Elliott, who addresses the question of relationship of social sciences to artificial intelligence, and who surveys various convergences and divergences between contemporary social theory and the digital revolution. The Handbook is exceptionally wide-ranging in span, covering topics all the way from AI technologies in everyday life to single-purpose robots in outer space, the end of the main-streaming of human-machine interfaces to the latest advances in AI, such as the ability to mimic (and improve on) many aspects of human brain function. A unique integration of social science on the one hand and new technologies of artificial intelligence on the other, this Handbook offers readers new ways of understanding the rise of AI and its associated global transformations. Written in a clear and direct style, the Handbook will appeal to a wide undergraduate audience.

Equivalence: Elizabeth L. Scott at Berkeley is the compelling story of one pioneering statistician's relentless twenty-year effort to promote the status of women in academe and science. Part biography and part microhistory, the book provides the context and background to understand Scott's masterfulness at using statistics to help solve societal problems. In addition to being one of the first researchers to work at the interface of astronomy and statistics and an early practitioner of statistics using high-speed computers, Scott worked on an impressively broad range of questions in science, from whether cloud seeding actually works to whether ozone depletion causes skin cancer. Later in her career, Scott became swept up in the academic women's movement. She used her well-developed scientific research skills together with the advocacy skills she had honed, in such activities as raising funds for Martin Luther King Jr. and keeping Free Speech Movement students out of jail, toward policy making that would improve the condition of the academic workforce for women. The book invites the reader into Scott's universe, a window of inspiration made possible by the fact that she saved and dated every piece of paper that came across her desk.

The authors give a comprehensive treatment of the parabolic Signorini problem based on a generalization of Almgren's monotonicity of the frequency. This includes the proof of the optimal regularity of solutions, classification of free boundary points, the regularity of the regular set and the structure of the singular set.

United States Government Publications Monthly Catalog

A War Story

Risk and Ruin

Integrated Technical Treatment

Form and Environmental Anxiety in Postwar America

Global Actions and Impacts

The Rise, Fall, and Deadly Persistence of the Product That Defined America

Interdisciplinary and Advanced Topics in Science and Engineering, Volume 3: Separation of Flow presents the problem of the separation of fluid flow. This book provides information covering the fields of basic physical processes, analyses, and experiments concerning flow separation. Organized into 12 chapters, this volume begins with an overview of the flow separation on the body surface as discussed in various classical examples. This text then examines the analytical and experimental results of the laminar boundary layer of steady, two-dimensional flows in the subsonic speed range. Other chapters consider the study of flow separation on the two-dimensional body, flow separation on three-dimensional body shape and particularly on bodies of revolution. This book discusses as well the analytical solutions of the unsteady flow separation. The final chapter deals with the purpose of separation flow control to raise efficiency or to enhance the performance of vehicles and fluid machineries involving various engineering applications. This book is a valuable resource for engineers.

This book aims to integrate, in a pedagogical and technical manner, with detailed derivations, all essential principles of fundamental theoretical physics as developed over the past 100 years. It covers: Quantum physics and Stability Problems in the Quantum World, Minkowski Spacetime Physics Particle Classifications and Underlying Symmetries, Symmetry Violations, Quantum Field Theory of Particle Interactions, Higgs Field Physics, Supersymmetry: A Theory with Mathematical Beauty Superstrings, Gravity and Supergravity, General Relativity Predictions, including Frame Dragging, Intricacies of Black Hole Physics, Perturbative and Non-perturbative Quantum Gravity Intricacies of Modern Cosmology, including Inflation and Power Spectrum If you are in the process of learning, or are lecturing on, any of the subjects above, then this is your book - irrespective of your speciality. With over-specialization and no time to master all the fields given above, students, and perhaps many physicists, may find it difficult to keep up with all the exciting developments going on, and are even less familiar with their underlying technicalities: e.g. they might have heard that the Universe is 13.8 billion years old, but have no idea on how this number is actually computed. This unique book will be of great value to graduate students, instructors and researchers interested in the intricacies and derivations of the many aspects of modern fundamental theoretical physics. And, although a graduate level book, some chapters may also be suitable for advanced undergraduates in their final year.

The mission UNESCO, as defined just after the end of World War II, is to build "the defenses of peace in the minds of men". In this book, historians trace the routes of selected UNESCO mental engineering initiatives from its headquarters in Paris to the member states, to assess UNESCO's global impact.

This is the first history of phytotrons, huge climate-controlled laboratories that enabled plant scientists to experiment on the environmental causes of growth and development of living organisms. Made possible by computers and other modern technologies of the early Cold War, such as air conditioning and humidity control, phytotrons promised an end to global hunger and political instability, spreading around the world to thirty countries after World War II. The United States built nearly a dozen, including the first at Caltech in 1949. By the mid-1960s, as support and funding for basic science dwindled, phytotrons declined and ultimately disappeared—until, nearly thirty years later, the British built the Ecotron to study the impact of climate change on biological communities. By recalling the forgotten history of phytotrons, David P. D. Muans reminds us of the important role they can play in helping researchers unravel the complexities of natural ecosystems in the Anthropocene.

Making Sense of Weather and Climate

Dispatches from an Uncertain World

Optimal Regularity and the Free Boundary in the Parabolic Signorini Problem

Half-Life

Assured Destruction

Equivalence

The Epic Rise and Dramatic Fall of the Atomic Era

Since 9/11, Russia, China, and Iran have successfully exploited or stretched U.S. thresholds for high-order war in order to further their strategic ends and, in the process, undermine U.S. interests. Each of these countries has made expert use of some combination of measures short of war to enact its strategies. This report describes those measures and how these nation-states use them and explains why U.S. notions of thresholds might be outdated.

Elizabeth L. Scott at Berkeley

Domesticating the Invisible

Research Memorandum

Quantum Interaction

The Age of Radiance

Stretching and Exploiting Thresholds for High-Order War

Spacecraft Dynamics and Control