Physical Science Memo For 2013 Paper 2

Volume Two of Business and Society 360 focuses on research drawn from work grounded in "corporate social responsibility" and "corporate citizenship."

"This text provides readers with the information and tools needed to understand what constitutes evidence, search efficiently for applicable evidence in the literature, evaluate the findings in the literature, and integrate the evidence with clinical judgment and individual patient preferences and values. Students will learn how evaluate research designs, appraise evidence, and apply research in clinical practice"--Provided by publisher.

The last century has seen enormous leaps in the development of digital technologies, and most aspects of modern life have changed significantly with their widespread availability and use. Technology at various scales - supercomputers, corporate networks, desktop and laptop computers, the internet, tablets, mobile phones, and processors that are hidden in everyday devices and are so small you can barely see them with the naked eye - all pervade our world in a major way. Computers and Society: Modern Perspectives is a wide-ranging and comprehensive textbook that critically assesses the global technical achievements in digital technologies and how are they are applied in media; education and learning; medicine and health; free speech, democracy, and government; and war and peace. Ronald M. Baecker reviews critical ethical issues raised by computers, such as digital inclusion, security, safety, privacy,automation, and work, and discusses social, political, and ethical controversies and choices now faced by society. Particular attention is paid to new and exciting developments in artificial intelligence and machine learning, and the issues that have arisen from our complex relationship with AI.

Research on Indigenous participation in sport offers many oppertunities to better understand the political issues of equality, empowerment, self-determination and protection of culture and identity. This volume compares and conceptualises the sociological significance of Indigenous sports in different international contexts. The contributions, all written by Indigenous scholars and those working directly in Indigenous/Native Studies units, provide unique studies of contemporary experiences of Indigenous sports participation. The papers investigate current understandings of Indigeneity found to circulate throughout sports, sports organisations and Indigenous communities. by (1): situating attitudes to racial and cultural difference within the broader sociological processes of post colonial Indigenous worlds (2): interrogating perceptions of Indigenous identity with reference to contemporary theories of identity drawn from Indigenous Studies and (3): providing insight to increased Indigenous participation, empowerment and personal development through sport with reference to sociological theory.

Nuclear nonproliferation is a critical global issue. A key technological challenge to ensuring nuclear nonproliferation and security is the detection of long-lived radioisotopes and fissionable nuclides in a non-destructive manner. This technological challenge requires new methods for detecting relevant nuclides and the development of new quantum-beam sources. For example, one new method that has been proposed and studied is nuclear resonance fluorescence with energy-tunable, monochromatic gamma-rays generated by Compton scattering of laser photons with electrons. The development of new methods requires the help of researchers from a wide range of fields, such as nuclear physics, accelerator physics, laser physics, etc. Furthermore, any new method must be compatible with the requirements of administrators and nuclear-material inspectors. Contents:PrefaceOral Presentations:Nuclear Science and Applications with the Next Generation of High-Power Lasers and Brilliant Low-Energy Gamma Beams at ELI-NP (S Gales)New Non-Intrusive Inspection Technologies for Nuclear Security and Nonproliferation (R J Ledoux)Development of Gamma-Ray Nondestructive Detection and Assay Systems for Nuclear Safeguards and Security at JAEA (R Hajima)Photonuclear Reaction Studies at HI?S: Developing the Science of Remote Detection of Nuclear Materials (C R Howell)Dipole Strength Around the Particle Threshold (D Savran)Resonant Photonuclear Reactions for Neutrino Nuclear Responses and Nuclear Isotope Detections (H Ejiri)Non-Destructive Testing for Control of Radioactive Waste Package (S Plumeri and F Carrel)Development of First Responders Equipment at RN Incident Sites (K Tsuchiya et al.)Compact Short-Pulsed Electron Linac Based Neutron Sources for Precise Nuclear Material Analysis (M Uesaka et al.)Laser-Driven Plasma Deceleration of Electron Beams for Compact Photon Sources (J-L Vay et al.)Advanced Laser-Compton Gamma-Ray Sources for Nuclear Materials Detection, Assay and Imaging (C P J Barty)Compact Gamma-Beam Source for Nuclear Security Technologies (P Gladkikh and J Urakawa)Developments of Optical Resonators and Optical Recirculators for Compton X/? Ray Machines (A Martens)Low-Lying “Pygmy” Dipole Resonances and Strength Functions (V Werner et al.)NRF-Based NDA of Nuclear Material Using Monochromatic ?-Ray Beam (T Shizuma et al.)Improving the Assay of 239Pu in Spent and Melted Fuel Using the Nuclear Resonance Fluorescence Integral Resonance Transmission Method (C T Angell et al.)Laser Compton Scattering Gamma-Ray Beam Source at NewSUBARU Storage Ring (S Miyamoto et al.)Energy Calibration of Electron and Gamma-Ray Beams at NewSUBARU-GACKO (T Shima and H Utsunomiya)A Paradigm for the Nondestructive Assay of Spent Fuel Assemblies and Similar Large Objects, with Emphasis on the Role of Photon-Based Techniques (A M Bolind)Medium Modification of ? Cluster Size in 6Li (T Yamagata et al.)Noninvasive Reactor Imaging Using Cosmic-Ray Muons (H Miyadera et al.)Compton Radiation for Nuclear Waste Management and Transmutation (E Bulyak and J Urakawa)Compact Intense Neutron Generators Based on Inertial Electrostatic Confinement of D-D Fusion Plasmas (K Masuda et al.)NRF Based Nondestructive Inspection System for SNM by Using Laser-Compton-Backscattering Gamma-Rays (H Ohgaki et al.)Development of Measurement Methods for Detection of Special Nuclear Materials Using D-D Pulsed Neutron Source (T Misawa et al.)SOFIA, a Next-Generation Facility for Fission Yields Measurements and Fission Study. First Results and Perspectives (L Audouin et al.)Present Status of Nuclear Data for Nuclear Nonproliferation (M Igashira)Development of the Experimental Photo-Nuclear Reaction Database in Hokkaido University (A Makinaga)Laser-Compton Scattering Photon Beams and Other Gamma-Ray Sources: Project for Coherent Gamma-Ray Source on Basis of Femtosecond Laser at ILC MSU (V G Nedorezov and A B Savelév)Laser Driven Ion Acceleration Study in JAEA (K Kondo)Status of New JENDL Photonuclear Data File (K Kosako et al.)Nuclear Research with E??15 MeV Photons (C Rangacharyulu)IRIDE: Interdisciplinary Research Infrastructure Based on Dual Electron Linac and Laser (M Ferrario)Poster Presentations:A Study of the Nuclear Resonance Fluorescence Reaction Yield Dependence on the Target Thickness of 208PB (H Negm et al.)Photodisintegration Reactions with Linear Polarized ?-Ray Beam (T Hayakawa et al.)Test Experiment of ?-Ray Diffraction for Crystal Monochromators (S Matsuba et al.)Overview of Laser Compton-scattered Photon Source at the cERL (R Nagai et al.)Development of a High-Brightness and High-Current Electron Gun for High-Flux ?-Ray Generation (N Nishimori et al.)Design of ERL Spoke Cavity for Non-Destructive Assay Research (M Sawamura et al.)Measurements of Cosmic-Ray Muon-

Capture X-Rays and Its Application to Nuclear Material Detection (Y Shimbara et al.)Active Neutron-Based Interrogation System with D-D Neutron Source for Detection of Special Nuclear Materials (Y Takahashi et al.)Closing Summary:Summary Comments: Nuclear Physics and Gamma-Ray Sources for Nuclear Security and Nonproliferation (C P J Barty) Readership: Researchers and professionals in the field of nuclear physics. Keywords:Nuclear Nonproliferation;Long-lived Radioisotopes;Fissionable Nuclides;Compton Scarttering;Monochromatic Gamma-rays;Nuclear Resonance Fluorescence;Nuclear Physics

These proceedings represent the work of researchers participating in the 10th International Conference on e-Learning (ICEL 2015) which is being hosted this year by the College of the Bahamas, Nassau on the 25-26 June 2015. ICEL is a recognised event on the International research conferences calendar and provides a valuable platform for individuals to present their research findings, display their work in progress and discuss conceptual advances in the area of e-Learning. It provides an important opportunity for researchers and managers to come together with peers to share their experiences of using the varied and expanding range of e-Learning available to them. With an initial submission of 91 abstracts, after the double blind, peer review process there are 41 academic Research papers and 2 PhD papers Research papers published in these Conference Proceedings. These papers come from some many different countries including: Australia, Belgium, Brazil, Canada, China, Germany, Greece, Hong Kong, Malaysia, Portugal, Republic of Macedonia, Romania, Slovakia, South Africa, Sweden, United Arab Emirates, UK and the USA. A selection of the best papers – those agreed by a panel of reviewers and the editor will be published in a conference edition of EJEL (the Electronic Journal of e-Learning www.ejel.com). These will be chosen for their quality of writing and relevance to the Journal's objective of publishing papers that offer new insights or practical help into the application e-Learning.

The massive increase in digital information in the last decade has created new requirements for institutional and technological structures and workforce skills. Preparing the Workforce for Digital Curation focuses on education and training needs to meet the demands for access to and meaningful use of digital information, now and in the future. This study identifies the various practices and spectrum of skill sets that comprise digital curation, looking in particular at human versus automated tasks. Additionally, the report examines the possible career path demands and options for professionals working in digital curation activities, and analyzes the economic benefits and societal importance of digital curation for competitiveness, innovation, and scientific advancement. Preparing the Workforce for Digital Curation considers the evolving roles and models of digital curation functions in research organizations, and their effects on employment opportunities and requirements. The recommendations of this report will help to advance digital curation and meet the demand for a trained workforce.

Convergence of the life sciences with fields including physical, chemical, mathematical, computational, engineering, and social sciences is a key strategy to tackle complex challenges and achieve new and innovative solutions. However, institutions face a lack of guidance on how to establish effective programs, what challenges they are likely to encounter, and what strategies other organizations have used to address the issues that arise. This advice is needed to harness the excitement generated by the concept of convergence and channel it into the policies, structures, and networks that will enable it to realize its goals. Convergence investigates examples of organizations that have established mechanisms to support convergent research. This report discusses details of current programs, how organizations have chosen to measure success, and what has worked and not worked in varied settings. The report summarizes the lessons learned and provides organizations with strategies to tackle practical needs and implementation challenges in areas such as infrastructure, student education and training, faculty advancement, and inter-institutional partnerships.

A Report for the World Bank by the Potsdam Institute for Climate Impact Research and Analytics.

A guide to the fascinating interplay between particle physics and astrophysics that highlights the discovery of neutrino oscillations Written by three international experts on the topic, Solar Neutrino Physics offers a review of the status of solar physics with its strong link to neutrino physics. The book explores constitutive physics and the governing equations of standard solar models. The authors also review the theory of neutrinos in the Standard Model and the related detector experiments. The book contains a summary of the results from various experiments and develops a coherent view of the current state-of-the-art of solar neutrino physics. Solar Neutrino Physics shows how solar models can be calibrated with the observational constraints of the age, mass, radius, and luminosity of the sun. The authors present general evolutionary properties of the sun as a star, past and future. They also discuss the solar neutrino production via the pp-chains and CNO-cycle, including the important role of the chemical composition of the sun. A very important source of information about the solar interior is offered by helioseismology, the study of solar oscillations. This important book: -Presents a high-level overview of the field of solar neutrino physics -Brings together data and their interpretation of results obtained at various solar neutrino observatories -Combines the theory of nuclear reactions with solar neutrino experiments -Contains a review of SNO+, JUNO, LENA, Hyper-Kamiokande, and DUNE. Written for astronomers, physicists, and high energy physicists, Solar Neutrino Physics contains a review of the field of neutrino physics, the relevant equations, and the impact of matter on the behavior of neutrino oscillations.

Openness and sharing of information are fundamental to the progress of science and to the effective functioning of the research enterprise. The advent of scientific journals in the 17th century helped power the Scientific Revolution by allowing researchers to communicate across time and space, using the technologies of that era to generate reliable knowledge more quickly and efficiently. Harnessing today's stunning, ongoing advances in information technologies, the global research enterprise and its stakeholders are moving toward a new open science ecosystem. Open science aims to ensure the free availability and usability of scholarly publications, the data that result from scholarly research, and the methodologies, including code or algorithms, that were used to generate those data. Open Science by Design is aimed at overcoming barriers and moving toward open science as the default approach across the research enterprise. This report explores specific examples of open science and discusses a range of challenges, focusing on stakeholder perspectives. It is meant to provide guidance to the research enterprise and its stakeholders as they build strategies for achieving open science and take the next steps.

BES, the Beijing Spectrometer, began its first groundbreaking physics run, thirty years ago, in 1989. This is the first high energy physics experiment in China, and has been unique throughout the world for its thorough and extended coverage

of the tau and charm energy region. Since then, the BES detector has undergone steady improvements, upgrading to BESII in 1998 and to BESIII in 2008. Over the same period, the collaboration has expanded from 150 members, across 10 institutions in China and the United States, to about 500 members, across 72 institutions and 15 countries. The physics program, too, has extended from light hadron spectroscopy, tau, and charm physics to the discovery of exotic charmonium-like states, precision tests of the Standard Model of particle physics, and searches for new physics beyond the Standard Model.This special volume collects the proceedings of the symposium held at the Institute of High Energy Physics, Beijing, in celebration of the 30-year span of achievements and progress at the BES, BESII, and BESIII experiments. Written by many leaders of the BES collaborations, these proceedings document the early days of the BES experiments, important milestones, and the future physics program at BESIII.

During the 2016 presidential election, America's election infrastructure was targeted by actors sponsored by the Russian government. Securing the Vote: Protecting American Democracy examines the challenges arising out of the 2016 federal election, assesses current technology and standards for voting, and recommends steps that the federal government, state and local governments, election administrators, and vendors of voting technology should take to improve the security of election infrastructure. In doing so, the report provides a vision of voting that is more secure, accessible, reliable, and verifiable.

Crime, Violence, and Global Warming introduces the many connections between climate change and criminal activity. Conflict over natural resources can escalate to state and non-state actors, resulting in wars, asymmetrical warfare, and terrorism. Crank and Jacoby apply criminological theory to each aspect of this complicated web, helping readers to evaluate conflicting claims about global warming and to analyze evidence of the current and potential impact of climate change on conflict and crime. Beginning with an overview of the science of global warming, the authors move on to the links between climate change, scarce resources, and crime. Their approach takes in the full scope of causes and consequences, present and future, in the United States and throughout the world. The book concludes by looking ahead at the problem of forecasting future security implications if global warming continues or accelerates. This fresh approach to the criminology of climate change challenges readers to examine all sides of this controversial question and to formulate their own analysis of our planet’s future.

This handbook provides a comprehensive and authoritative state-of-the-art review of the current and emerging research and policy on disability law. Bringing together a team of respected and experienced experts, the handbook offers a range of jurisdictional and multidisciplinary perspectives. The authors consider historical and contemporary, as well as comparative perspectives of disability law. Divided into three parts, the contributors provide a comprehensive reference to the theoretical underpinnings, ongoing debates and emerging fields within the subject. The study provides a strong basis for consideration of contemporary disability law, its research foundations, and progressive developments in the area. The book incorporates interdisciplinary and comparative country perspectives to capture the breadth of current discourse on disability law. This handbook provides a valuable resource for a wide range of scholars, public and private researchers, NGOs, and practitioners working in the area of disability law, and across national and transnational disability schemes. The work will be of important interest to those in the fields of sociology, history, psychology, economics, political science, rehabilitation sciences, medicine, technology, and law, among others.

Study & Master Physical Sciences Grade 12 has been especially developed by an experienced author team for the Curriculum and Assessment Policy Statement (CAPS). This new and easy-to-use course helps learners to master essential content and skills in Physical Sciences.

The fundamental and very important property of inertia has never been well understood. This book shows how inertia has puzzled many scientists such as Galileo and Mach, and then presents a new theory that explains inertia for the first time, and also predicts galaxy rotation without dark matter, cosmic acceleration and some other anomalies. Further evidence for, and tests of, the theory are presented and exciting applications such as new inertial launch methods and the theoretical possibility of faster than light travel will be discussed. To allow readers to use the theory themselves, some simple maths is included, and to help explain the points made, there are numerous cartoons by the author. Contents:A History of InertiaModern PhysicsProblems at Low AccelerationA Solution from the Edge: MiHsCEvidence for MiHsCFuture Experimental Tests of MiHsCMiHsC and Faster Than Light Travel Readership: Students and researchers in physics. Key Features:It outlines the start of an entirely new formulation of physics that may solve present problems. One that has been published in journals but not as a bookIt covers most of (astro)physics simply and succinctly so it should be of interest to the scientifically-minded general publicIt is written accessibly for the public, with some cartoons by the author, but also includes some equations to allow interested researchers to make calculationsKeywords:Inertia;Physics;Cosmology;MiHsC;Hubble-Scale;Casimir Effect;Unruh Radiation

This book is the first general social analysis that seriously considers the daily experience of information disruption and software failure within contemporary Western society. Through an investigation of informationalism, defined as a contemporary form of capitalism, it describes the social processes producing informational disorder. While most social theory sees disorder as secondary, pathological or uninteresting, this book takes disordering processes as central to social life. The book engages with theories of information society which privilege information order, offering a strong counterpoint centred on "disinformation." Disorder and the Disinformation Society offers a practical agenda, arguing that difficulties in producing software are both inherent to the process of developing software and in the social dynamics of informationalism. It outlines the dynamics of software failure as they impinge on of information workers and on daily life, explores why computerized finance has become inherently self-disruptive, asks how digital enclosure and intellectual property create conflicts over cultural creativity and disrupt informational accuracy and scholarship, and reveals how social media can extend, but also distort, the development of social movements.

In 2015, the Air Force Studies Board conducted a workshop, consisting of two data-gathering sessions, to review current research practices employed by the Air Force Office of Scientific Research (AFOSR). Improving the Air Force Scientific Discovery Mission summarizes the presentations and discussions of these two sessions. This report explores the unique drivers associated with management of a 6.1 basic research portfolio in the Department of Defense and investigates current and future practices that may further the effective and efficient management of basic research on behalf of the Air Force

This book deals with mathematical problems arising in the context of meteorological modelling. It gathers and presents some of the most interesting and important issues from the interaction of mathematics and meteorology. It is unique in that it features contributions on topics like data assimilation, ensemble prediction, numerical methods, and transport modelling, from both mathematical and meteorological perspectives. The derivation and solution of all kinds of numerical prediction models require the application of results from various mathematical fields. The present volume is divided into three parts, moving from mathematical and numerical problems through air quality modelling, to advanced applications in data assimilation and probabilistic forecasting. The book arose from the workshop “Mathematical Problems in Meteorological Modelling” held in Budapest in May 2014 and organized by the ECMI Special Interest Group on Numerical Weather Prediction. Its main objective is to highlight the beauty of the development fields discussed, to demonstrate their mathematical complexity and, more importantly, to encourage mathematicians to contribute to the further success of such practical applications as weather forecasting and climate change projections. Written by leading experts in the field, the book provides an attractive and diverse introduction to areas in which mathematicians and modellers from the meteorological community can cooperate and help each other solve the problems that operational weather centres face, now and in the near future. Readers engaged in meteorological research will become more familiar with the corresponding mathematical background, while mathematicians working in numerical analysis, partial differential equations, or stochastic analysis will be introduced to further application fields of their research area, and will find stimulation and motivation for their future research work.

In the field of astrophysics, modern developments of practice are emerging in order to further understand the spectral information derived from cosmic sources. Radio telescopes are a current mode of practice used to observe these occurrences. Despite the various accommodations that this technology offers, physicists around the globe need a better understanding of the underlying physics and operational components of radio telescopes as well as an explanation of the cosmic objects that are being detected. Analyzing the Physics of Radio Telescopes and Radio Astronomy is an essential reference source that discusses the principles of the astronomical instruments involved in the construction of radio telescopes and the analysis of cosmic sources and celestial objects detected by this machinery. Featuring research on topics such as electromagnetic theory, antenna design, and geometrical optics, this book is ideally designed for astrophysicists, engineers, researchers, astronomers, students, and educators seeking coverage on the operational methods of radio telescopes and understanding the physical processes of radio astronomy.

Modern science is ever more driven by computations and simulations. In particular, the state of the art in space and Earth science often arises from complex simulations of climate, space weather, and astronomical phenomena. At the same time, scientific work requires data processing, presentation, and analysis through broadly available proprietary and community software.1 Implicitly or explicitly, software is central to science. Scientific discovery, understanding, validation, and interpretation are all enhanced by access to the source code of the software used by scientists. This report investigates and recommends options for NASA's Science Mission Directorate (SMD) as it considers how to establish a policy regarding open source software to complement its existing policy on open data. In particular, the report reviews existing data and software policies and the lessons learned from the implementation of those policies, summarizes community perspectives, and presents policy options and recommendations for implementing an open source software policy for NASA SMD.

CLEO publications in Frontiers in Marine Science Foreword Josef Aschbacher, Director of ESA’s Earth Observation Programmes Satellite data have drastically changed the view we have of the oceans. Covering about 70% of Earth’s surface, oceans play a unique role for our planet and for our life – but large areas remain unexplored and are difficult to reach. Since the 1980s, Earth-orbiting satellites have helped to observe what is happening at the ocean surface. Sensors like CZCS, AVHRR, SeaWifs and MODIS provided the first ocean colour data from space. Starting in 2002, ESA's Medium Resolution Imaging Spectrometer (MERIS) on-board the environmental satellite Envisat, provided detailed information on phytoplankton biomass and concentrations of other matter in the global oceans. These satellite observations laid the groundwork for studying the marine environment and how it responds to climate change, and the research community has since delivered information on the variability of marine ecosystems. Part of this work is reflected in this stunning collection of peer-reviewed publications presented at the workshop, Colour and Light in the Ocean from Earth Observation (CLEO), held at ESA’s ESRIN site in Frascati, Italy, on 6–8 September 2016. The event attracted more than 160 participants from all over the world, including remote sensing experts, marine ecosystem modelers, in-situ observers and users of Earth observation data. Scientifically, the meeting covered applications in climate studies over primary productivity and ocean dynamics, to pools of carbon and phytoplankton diversity at global and regional scales. It also demonstrated the potential of Earth observation and its contribution to modern oceanography. Looking to the future, new satellites developed by ESA under the coordination of the European Commission will further our scientific and operational observations of the seas. With Sentinel-3A in orbit and its twin Sentinel-3B following in 2017, there is a new category of data available for operational oceanographic applications and climate studies for years to come. These data are free and easy to access by anyone interested. Looking at the role of oceans in our daily lives, I am sure that this collection of scientific excellence will be valued by scientists of today and will inspire the next generation to carry these

ideas into the future.
O. Westin's micro science fiction is set in an extra-terrestrial future, capturing scenes of interstellar life – transgalactic communication attempts between aliens and humans, philosophizing robots, Siri’s emotions, and plenty of comic relief across the space-time continuum. The over 350 very short stories tackle all the Big Questions: How do you establish contact with aliens without offending them? Will artificial intelligences one day demand election rights? And which species would aliens decide to contact on Planet Earth? “Some of the best depth and potential built into the space of a single tweet.” MEG, Chair of the BristolCon SF Convention “I've been writing microfics on postcards and my appreciation for the Sheer Compressed Wonder you create has only increased. (Which isn't to say I ever thought it was *easy*.)“ Jeanette Ng, award-nominated SF novelist “Like a circus tent, @MicroSFF stories are much bigger on the inside than they appear on the outside.“ Gunnstein R'Lyeh
Managing Medical Devices within a Regulatory Framework helps administrators, designers, manufacturers, clinical engineers, and biomedical support staff to navigate worldwide regulation, carefully consider the parameters for medical equipment patient safety, anticipate problems with equipment, and efficiently manage medical device acquisition budgets throughout the total product life cycle. This contributed book contains perspectives from industry professionals and academics providing a comprehensive look at health technology management (HTM) best practices for medical records management, interoperability between and among devices outside of healthcare, and the dynamics of implementation of new devices. Various chapters advise on how to achieve patient confidentiality compliance for medical devices and their software, discuss legal issues surrounding device use in the hospital environment of care, the impact of device failures on patient safety, methods to advance skillsets for HTM professionals, and resources to assess digital technology. The authors bring forth relevant challenges and demonstrate how management can foster increased clinical and non-clinical collaboration to enhance patient outcomes and the bottom line by translating the regulatory impact on operational requirements. Covers compliance with FDA and CE regulations, plus EU directives for service and maintenance of medical devices Provides operational and clinical practice recommendations in regard to regulatory changes for risk management Discusses best practices for equipment procurement and maintenance Provides guidance on dealing with the challenge of medical records management and compliance with patient confidentiality using information from medical devices
An updated and accessible account of what science knows about climate change, incorporating the latest scientific findings and policy initiatives. Most of us are familiar with the term climate change but few of us understand the science behind it. We don't fully comprehend how climate change will affect us, and for that reason we might not consider it as pressing a concern as, say, housing prices or unemployment. This book explains the scientific knowledge about global climate change clearly and concisely in engaging, nontechnical language, describes how it will affect all of us, and suggests how government, business, and citizens can take action against it. This completely revised and updated edition incorporates the latest scientific research and policy initiatives on climate change. It describes recent major legislative actions, analyzes alternative regulatory tools including new uses of taxes and markets, offers increased coverage of China and other developing nations, discusses the role of social media in communicating about climate change, and provides updated assessments of the effects of climate change. The book first explains the basic scientific facts about climate change and its global impact. It discusses the nature of scientific consensus and the strong consensus of mainstream science on climate change. It then explores policy responses and corporate actions in the United States and the rest of the world, discusses how the communication of climate change information by journalists and others can be improved, and addresses issues of environmental justice—how climate change affects the most vulnerable populations and regions. We can better tackle climate change, this book shows us, if we understand it.
Today’s era of intense globalization has unleashed dynamic movements of people, pathogens, and pests that overwhelm the static territorial jurisdictions on which the governance provided by sovereign states and their formal intergovernmental institutions is based. This world of movement calls for new ideas and institutions to govern people’s health, above all in Africa, where the movements and health challenges are the most acute. This book insightfully explores these challenges in ways that put the perspectives of Africans themselves at centre stage. It begins with the long central and still compelling African health challenge of combating the pandemic of HIV/AIDS. It then examines the global governance responses by the major multilateral organizations of the World Bank and the World Trade Organization and the newer informal flexible democratically oriented ones of the Group of Eight. It also addresses the compounding health challenge created by climate change to assess both its intensifying impact on Africa and how all international institutions have largely failed to link climate and health in their governance response. It concludes with several recommendations about the innovative ideas and institutions that offer a way to closing the great global governance gaps and thus improving Africans’ health and that of citizens beyond.
Ludwig Faddeev is widely recognized as one of the titans of 20th century mathematical physics. His fundamental contributions to scattering theory, quantum gauge theories, and the theory of classical and quantum completely integrable systems played a key role in shaping modern mathematical physics. Ludwig Faddeev's major achievements include the solution of the three-body problem in quantum mechanics, the mathematical formulation of quantum gauge theories and corresponding Feynman rules, Hamiltonian and algebraic methods in mathematical physics, with applications to gauge theories with anomalies, quantum systems with constraints and solitons, the discovery of the algebraic structure of classical and quantum integrable systems and quantum groups, and solitons with the topology of knots. Faddeev's name is imprinted in many areas of mathematics and theoretical physics, including "Faddeev's equations" and "Faddeev's Green function" in scattering theory, "Faddeev-Popov ghosts" and "Faddeev-Popov determinant" in gauge theories, "Gardner-Faddeev-Zakharov bracket" for the KdV equation, "Faddeev-Zamolodchikov algebra" in quantum integrable systems, "Faddeev-Reshetikhin-Takhtajan construction" in the theory of quantum groups, knotted solitons in the "Skyrme-Faddeev model" and many others. Ludwig Faddeev founded the St. Petersburg school of modern mathematical physics and distinguished himself by serving the mathematics community for over three decades including his leadership of the International Mathematical Union in the period of 1986-1990. He was conferred numerous prizes and memberships of prestigious institutions in recognition of the importance of his work. These include the Dannie Heineman Prize for Mathematical Physics, the Dirac Medal, the Max Planck Medal, the Shaw Prize and the Lomonosov Gold Medal among others. A gathering of contributions from some of the biggest names in mathematics and physics, this volume serves as a tribute to this legendary figure. Volume contributors include: Fields medalist Sir Michael Atiyah, Jürg Fröhlich, Roman Jackiw, Vladimir Korepin, Nikita Nekrasov, André Neveu, Alexander M Polyakov, Samson Shatashvili, Fedor Smirnov as well as Nobel laureates Frank

Wilczek and C N Yang. "Ludwig and I had been good friends since the early 1970s. We had overlapping interests in several areas of physics. He was very powerful mathematically. I had written in several places that he should have shared the 1999 Nobel Prize in Physics with 't Hooft and Veltman" C N Yang, Nobel Laureate in Physics 1997 in Seoul. Faddeev with Baxter and Yang. 2005 in Tsinghua University. Left to right: Faddeev, Yang, Niemi and Ge.

Nanowires are attracting wide scientific interest due to the unique properties associated with their one-dimensional geometry. Developments in the understanding of the fundamental principles of the nanowire growth mechanisms and mastering functionalization provide tools to control crystal structure, morphology, and the interactions at the material interface, and create characteristics that are superior to those of planar geometries. This book provides a comprehensive overview of the most important developments in the field of nanowires, starting from their synthesis, discussing properties, and finalizing with nanowire applications. The book consists of two parts: the first is devoted to the synthesis of nanowires and characterization, and the second investigates the properties of nanowires and their applications in future devices.

The story of the rise of modern navigation technology, from radio location to GPS—and the consequent decline of privacy What does it mean to never get lost? You Are Here examines the rise of our technologically aided era of navigational omniscience—or how we came to know exactly where we are at all times. In a sweeping history of the development of location technology in the past century, Bray shows how radio signals created to carry telegraph messages were transformed into invisible beacons to guide ships and how a set of rapidly-spinning wheels steered submarines beneath the polar icecap. But while most of these technologies were developed for and by the military, they are now ubiquitous in our everyday lives. Our phones are now smart enough to pinpoint our presence to within a few feet—and nosy enough to share that information with governments and corporations. Filled with tales of scientists and astronauts, inventors and entrepreneurs, You Are Here tells the story of how humankind ingeniously solved one of its oldest and toughest problems—only to herald a new era in which it's impossible to hide.

Despite the increase in funding for research and the rising numbers of peer-reviewed publications over the past decade that address the environmental, health, and safety aspects of engineered nanomaterials (ENMs), uncertainty about the implications of potential exposures of consumers, workers, and ecosystems to these materials persists. Consumers and workers want to know which of these materials they are exposed to and whether the materials can harm them. Industry is concerned about being able to predict with sufficient certainty whether products that it makes and markets will pose any environmental, health or safety issues and what measures should be taken regarding manufacturing practices and worldwide distribution to minimize any potential risk. However, there remains a disconnect between the research that is being carried out and its relevance to and use by decision-makers and regulators to make informed public health and environmental policy and regulatory decisions. Research Progress on Environmental, Health, and Safety Aspects of Nanomaterials evaluates research progress and updates research priorities and resource estimates on the basis of results of studies and emerging trends in the nanotechnology industry. This report follows up the 2012 report A Research Strategy for Environmental, Health, and Safety Aspects of Engineered Nanomaterials, which presented a strategic approach for developing the science and research infrastructure needed to address uncertainties regarding the potential environmental, health, and safety risks posed by ENMs. This new report looks at the state of nanotechnology research, examines market and regulatory conditions and their affect on research priorities, and considers the criteria for evaluating research progress on the environmental, health, and safety aspects of nanotechnology.

This volume contains the proceedings of the Arizona School of Analysis and Mathematical Physics, held from March 5–9, 2018, at the University of Arizona, Tucson, Arizona. A main goal of this school was to introduce graduate students and postdocs to exciting topics of current research that are both influenced by physical intuition and require the use of cutting-edge mathematics. The articles in this volume reflect recent progress and innovative techniques developed within mathematical physics. Two works investigate spectral gaps of quantum spin systems. Specifically, Abdul-Rahman, Lemm, Lucia, Nachtergaele, and Young consider decorated AKLT models, and Lemm demonstrates a finite-size criterion for D D-dimensional models. Bachmann, De Roeck, and Fraas summarize a recent proof of the adiabatic theorem, while Bachmann, Bols, De Roeck, and Fraas discuss linear response for interacting Hall insulators. Models on general graphs are the topic of the articles by Fischbacher, on higher spin XXZ, and by Latushkin and Sukhtaiev, on an index theorem for Schrödinger operators. Probabilistic applications are the focus of the articles by DeMuse and Yin, on exponential random graphs, by Saenz, on KPZ universality, and by Stolz, on disordered quantum spin chains. In all, the diversity represented here is a testament to the enthusiasm this rich field of mathematical physics generates.

The handbook contains a comprehensive compilation of topics that are at the forefront of many of the technical advances in ocean waves, coastal, and ocean engineering. More than 110 internationally recognized authorities in the field of coastal and ocean engineering have contributed articles in their areas of expertise to this handbook. These international luminaries are from highly respected universities and renowned research and consulting organizations around the world.

OECD’s Innovation Strategy calls upon all sectors in the economy and society to innovate in order to foster productivity, growth and well-being. Education systems are critically important for innovation through the development of skills that nurture new ideas and technologies.

The book advances knowledge about climate change adaptation practices through a series of case studies. It presents important evidence about adaptation practices in agriculture, businesses, the coastal zone, community services, disaster management, ecosystems, indigneous populations, and settlements and infrastructure. In addition to 38 case studies across these sectors, the book contains horizon-scoping essays from international experts in adaptation research, including Hallie Eakin, Susanne Moser, Jonathon Overpeck, Bill Solecki, and Gary Yohe. Australia’s social-ecological systems have a long history of adapting to climate variability and change, and in recent decades has been a world-leader in implementing and researching adaptation, making this book of universal relevance to all those working to adapt our environment and societies to climate change.

EXPLORING MARKETING RESEARCH, 11E, provides a thorough guide to the design, execution, analysis, and reporting of marketing research to support effective business decisions. The text prepares students to approach marketing research from a management perspective rather than as hands-on practitioners, providing valuable business context while introducing both traditional research methods, such as designing questionnaires, and the latest technological advances, including current data collection devices, data analysis tools, practical approaches to data

analytics, and the impact of social media and artifactual online data. In addition to updates based on recent trends and technology, the new 11th Edition features an increased emphasis on ethical and international issues, reflecting their growing importance in modern marketing research. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.