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This pioneering and in-depth study into the regulation of shale gas extraction examines how changes in the constitutional set-ups of EU Member States over the last 25 years have substantially altered the legal leverage of environmental protection and energy security as state objectives. As well as offering the first formal assessment of the legality of fracking bans and moratoria, Ruven Fleming further proposes a new methodology for the development of legally sound regulation of new energy technologies in the context of the energy transition.

Causal Physics: Photons by Non Interactions of Waves redefines the mathematical Superposition Principle as an operational Superposition Effect; which is the measurable physical transformation experienced by a detector due to stimulations induced by multiple waves simultaneously acting on the detecting dipoles. This light-matter interaction process driven model emerges naturally by incorporating the observed properties, Non-Interaction of Waves (NIW) and quantized photo detectors needing to fill up their "quantum-cups" with the required quantity of energy from all the stimulating waves around it. By not incorporating this NIW-property explicitly, quantum mechanics failed to extract various embedded realities in the theory while incorporated unnecessary hypotheses like wave-particle duality. The book utilizes this NIW-property to explain all the major optical phenomena (diffraction, spectrometry, coherence.) without using any self-contradictory hypotheses that are prevalent now. The book redefines the old ether (constituting the space) as a stationary Complex Tension Field (CTF), holding all the energy of the universe (no need for Dark Energy or Dark Matter). CTF sustains perpetually propagating EM waves as its linear excitations and the particles as self-looped localized resonant non-linear excitations. Tensions are identified by Maxwell, then the velocities of emitting and detecting atoms through the CTF contribute to the Doppler shifts separately. This calls for re-visiting physical processes behind Hubble Redshift and hence Expanding Universe. The success of the book derives from a novel thinking strategy of visualizing the invisible interaction processes, named as Interaction Process Mapping Epistemology (IPM-E). This is over and above the prevailing strategy of Measurable Data Modeling Epistemology (MDM-E). The approach inspires the next generation of physicists to recognizing that the "foundation of the edifice of physics" has not yet been finalized. IPM-E will stimulate more of us to become technology innovators by learning to emulate the ontologically real physical processes in nature and become more evolution congruent. Critical thinkers without expertise in optical science and engineering, will appreciate the value of the content by reading the book backward, starting from Ch.12; which explains the critical thinking methodology besides giving a very brief summary of the contents in the previous chapters. Establishes that abandoning the wave-particle-duality actually allows us to extract more realities out of quantum mechanics. Illustrates how the discovery of the NIW-property profoundly impacts several branches of fundamental physics, including Doppler effect and hence the cosmological red shift Summarizes that many ad hoc hypotheses from physics can be removed, a la Occam's razor, while improving the reality and comprehension of some of the current working theories Demonstrates that our persistent attempts to restore causality in physical theories will be guided by our capability to visualize the invisible light matter interaction processes that are behind the emergence of all measurable data Draws close attention to the invisible but ontological interaction processes behind various optical phenomena so we can emulate them more efficiently and knowledgably in spite of limitations of our theories Designed as a reference book for general physics and philosophy, this optical science and engineering book is an ideal resource for optical engineers, physicists, and those working with modern optical equipment and high precision instrumentation.

The job interview is probably the most important step you will take in your job search journey. Because it's always important to be prepared to respond effectively to the questions that employers typically ask at a job interview Petrogav International has prepared this eBooks that will help you to get a job in oil and gas industry. Since these questions are so common, hiring managers will expect you to be able to answer them smoothly and without hesitation. This eBook contains 150 questions and answers for job interview and as a BONUS web addresses to 220 video movies for a better understanding of the technological process. This course covers aspects like HSE, Process, Mechanical, Electrical and Instrumentation & Control that will enable you to apply for any position in the Oil and Gas Industry.

The landscape of international education has changed significantly in the last ten years and our understanding of concepts such as 'international', 'global' and 'multicultural' are being re-evaluated. Fully updated and revised, and now including new contributions from research in South East Asia, the Middle East, China, Japan, Australasia, and North America, the new edition of this handbook analyses the origins, interpretations and contributions of international education and explores key contemporary developments, including: internationalism in the context of teaching and learning leadership, standards and quality in institutions and systems of education the promotion of internationalism in national systems This important collection of research is an essential resource for anyone involved in the practice and academic study of international education, including researchers and teachers in universities, governmental and private curriculum development agencies, examination authorities, administrators and teachers in schools.

This edited volume is devoted to Big Data Analysis from a Machine Learning standpoint as presented by some of the most eminent researchers in this area. It demonstrates that Big Data Analysis opens up new research problems which were either never considered before, or were only considered within a limited range. In addition to providing methodological discussions on the principles of mining Big Data and the difference between traditional statistical data analysis and newer computing frameworks, this book presents recently developed algorithms affecting such areas as business, financial forecasting, human mobility, the Internet of Things, information networks, bioinformatics, medical systems and life science. It explores, through a number of specific examples, how the study of Big Data Analysis has evolved and how it has started and will most likely continue to affect society. While the benefits brought upon by Big Data Analysis are underlined, the book also discusses some of the warnings that have been issued concerning the potential dangers of Big Data Analysis along with its pitfalls and challenges.

This book tackles the regulatory issues of Unmanned Aerial Systems (UAS) or Remotely-Piloted Aerial Systems (RPAS), which have profound consequences for privacy, security and other fundamental liberties. Collectively known as "drones," they were initially deployed for military purposes: reconnaissance, surveillance and extrajudicial executions. Today, we are witnessing a growth of their use into the civilian and humanitarian domain. They are increasingly used for goals as diverse as news gathering, aerial inspection of oil refinery flare stacks, mapping of the Amazonian rain-forest, crop spraying and search and rescue operations. The civil use of drones is becoming a reality in the European Union and in the US. The drone revolution may be a new

technological revolution. Proliferation of the next generation of “recreational” drones show how drones will be sold as any other consumer item. The cultural perception of the technology is shifting, as drones are increasingly being used for humanitarian activities, on one hand, but they can also firmly be situated in the prevailing modes of postmodern governance on the other hand. This work will be of interest to researchers in Criminology and Criminal Justice interested in issues related to surveillance, security, privacy, and technology. It will also provide a criminological background for related legal issues, such as privacy law, aviation law, international criminal law, and comparative law.

From carbon fibre racing bikes to ‘sharkskin’ swimsuits, the application of cutting-edge design, technology and engineering has proved to be a vital ingredient in enhanced sports performance. This is the first book to offer a comprehensive survey of contemporary sports technology and engineering, providing a complete overview of academic, professional and industrial knowledge and technique. The book is divided into eight sections covering the following topics : Sustainable Sports Engineering Instrumentation Technology Summer Mobility Sports Winter Mobility Sports Apparel and Protection Equipment Sports Implements (racquets, clubs, bats, sticks) Sports Balls Sports Surfaces and Facilities Written by an international team of leading experts from industry, academia and commercial research institutes, the emphasis throughout the book is on innovation, the relationship between business and science, and the improvement of sports performance. This is an essential reference for anybody working in sports technology, sports product design, sports engineering, biomechanics, ergonomics, sports business or applied sport science.

This book presents recent advancements of research, new methods and techniques, applications and projects in decision making and decision support systems. It explores expert systems and neural networks, knowledge engineering and management, fuzzy sets and systems and computational methods for optimization, data analysis and decision making. It presents applications in Economics, Finance, Management and Engineering. The book undertakes to stimulate scientific exchange, ideas and experiences in the field of decision making in Economy and Management. Researchers and practitioners alike will benefit from this book, when they are dealing with imprecision, vagueness and uncertainty in the context of decision making. Unique in focus and international in scope, this book brings together 10 essays about the material, metaphorical, and symbolic importance of blood. An interdisciplinary study that unites the work of noted historians and anthropologists Incorporates insights from recent work in symbolism, kinship studies, medical anthropology, the anthropology of religion, the sociological study of finance, and textual analysis Covers topics such as Medieval European conceptions of blood; blood and the brain; blood and the cultural study of finance; and blood types, identity, and association in twentieth-century America

This Special Issue contains original scientific papers in the field of mineral physics (and also rock physics). These papers are grouped into four categories: Reviews, Experimental Science, Theoretical Science and Technological Developments. These papers include those from first authors covering 5 generations of mineral physicists, including contemporaries of Orson [e.g., William Bassett, Frank Stacey], the next generation of leaders in mineral physics throughout the world [e.g., Michael Brown, Eiji Ohtani], current leaders in this field [e.g., Agnes Dewaele, Jun Tsuchiya], senior graduate students [e.g., Jan Borgomano, Vasilije Dobrosavlijevic, Francesca Miozzi], and an undergraduate student [e.g., Tyler Perez]. Mineral physics is the study of mineralogical problems through the application of condensed matter physics. In reality, mineral physicists use not only physics, but also solid-state chemistry; they study not only minerals, but all materials related to natural minerals (e.g., structural analogs, but also glasses, melts and fluids). Mineral and rock physics is intimately connected to many other geoscience disciplines including seismology, planetary science, petrology, geochemistry, geomagnetism, and geodynamics, and even materials and climate science. This book is dedicated to Orson Anderson who died in June 2019 at the age of 94.

This SpringerBrief presents strategies for fire mitigation based on combustible assembly systems of exterior walls. Providing background information on common exterior wall systems, the mechanisms of fire spread, and case studies, it examines the difficulties in controlling a fire with several materials and assembly methods. The brief compiles information on typical fire scenarios which involve the exterior wall, along with further exploration into test methods, approval and regulatory requirements for the various assembly systems. Offering testing approaches for possible mitigation strategies, the brief takes into account that current commercial wall assembly systems are constructed to improve energy performance, reduce water and air infiltration, and allow for aesthetic design flexibility. Exterior Insulation Finish Systems, metal composite claddings, high-pressure laminates, and weather-resistive barrier systems all have components which directly impact the fire hazard. Recommendations for future exterior wall construction are based on identified knowledge gaps.

Rapidly generating and processing large amounts of data, supercomputers are currently at the leading edge of computing technologies. Supercomputers are employed in many different fields, establishing them as an integral part of the computational sciences. Research and Applications in Global Supercomputing investigates current and emerging research in the field, as well as the application of this technology to a variety of areas. Highlighting a broad range of concepts, this publication is a comprehensive reference source for professionals, researchers, students, and practitioners interested in the various topics pertaining to supercomputing and how this technology can be applied to solve problems in a multitude of disciplines.

The job interview is probably the most important step you will take in your job search journey. Because it's always important to be prepared to respond effectively to the questions that employers typically ask at a job interview Petrogav International has prepared this eBooks that will help you to get a job in oil and gas industry. Since these questions are so common, hiring managers will expect you to be able to answer them smoothly and without hesitation. This eBook contains 273 questions and answers for job interview and as a BONUS web addresses to 230 video movies for a better understanding of the technological process. This course covers aspects like HSE, Process, Mechanical, Electrical and Instrumentation & Control that will enable you to apply for any position in the Oil and Gas Industry.

This book presents the empirical analysis on status of stress among the higher secondary students and factors determining the same and thus offer insight to critically examine the social, familial, and individual factors that pose risks for student development and identify points of intervention. This book will enable school administrators/principals understand student responses towards difficult situations, which can help in making provisions for intervention at necessary point/stage for corrective and remedial measures. It will help educational leaders to provide a school happy learning climate marked by caring and supportive human resources and opportunities for meaningful participation that can promote resilience and counteract the risk factors in a

phases, operations and terminology used on offshore drilling platforms. It is intended also for non-drilling personnel who work in the offshore drilling, exploration and production industry. This includes marine and logistics personnel, accounting, administrative and support staff, environmental professionals, etc. No prior experience or knowledge of drilling operations is required. This course will provide participants a better understanding of the issues faced in all aspects of drilling operations, with a particular focus on the unique aspects of offshore operations.

Sarah Bridger examines the ethical debates that tested the U.S. scientific community during the Cold War, and scientists' contributions to military technologies and strategic policymaking, from the dawning atomic age through the Strategic Defense Initiative (Star Wars) in the 1980s, which sparked cross-generational opposition among scientists. The job interview is probably the most important step you will take in your job search journey. Because it's always important to be prepared to respond effectively to the questions that employers typically ask at a job interview Petrogav International has prepared this eBooks that will help you to get a job in oil and gas industry. Since these questions are so common, hiring managers will expect you to be able to answer them smoothly and without hesitation. This eBook contains 288 questions and answers for job interview and as a BONUS web addresses to 289 video movies for a better understanding of the technological process. This course covers aspects like HSE, Process, Mechanical, Electrical and Instrumentation & Control that will enable you to apply for any position in the Oil and Gas Industry.

Petrogav International provides courses for participants that intend to work on onshore oil and gas fields. Training courses are taught by professionals from the oil and gas industry with current knowledge and more than 25 years of field experience. The participants will get all the necessary competencies to work on the onshore oil and gas fields. It is intended also for non-drilling and non-production personnel who work in drilling, exploration and production industry. This includes marine and logistics personnel, accounting, administrative and support staff, environmental professionals, etc. This course provides a non-technical overview of the phases, operations and terminology used on onshore oil and gas fields. It is intended also for non-production personnel who work in the onshore drilling, exploration and production industry. This includes marine and logistics personnel, accounting, administrative and support staff, environmental professionals, etc. No prior experience or knowledge of drilling operations is required. This course will provide participants a better understanding of the issues faced in all aspects of oil and gas field operations, with a particular focus on the unique aspects of onshore production operations.

The book contains 256 questions and answers for job interview for hiring on onshore drilling rigs.

Supersymmetry (SUSY) is a new symmetry that relates bosons and fermions, which has strong support at both the mathematical and the physical level. This book offers a comprehensive review, following the development of SUSY from its very early days up to present. The order of the contributions should provide the reader with the historical development as well as the latest theoretical updates and interpretations, and experimental constraints from particle accelerators and dark matter searches. It is a great pleasure to bring together here contributions from authors who initiated or have contributed significantly to the development of this theory over so many years. To present a balanced point of view, the book also includes a closing contribution that attempts to describe the physics beyond the Standard Model in the absence of SUSY. The contributions to this book have been previously published in The European Physical Journal C - Particles and Fields.

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Frontiers in Earth Science is an open-access journal that aims to bring together and publish on a single platform the best research dedicated to our planet. This platform hosts all the rapidly growing and continuously expanding domains in Earth Science, involving the lithosphere (including geology, geophysics, geochemistry, and geography), the hydrosphere (including hydrology and cryospheric, marine and ocean sciences, complementing the existing Frontiers journal on Marine Science) and the atmosphere (including meteorology and climatology). As such, Frontiers in Earth Science focuses on the countless processes operating within and among the major spheres constituting our planet. In turn, the understanding of these processes provides the theoretical background to better use the available resources and to face the major environmental challenges (including earthquakes, tsunamis, eruptions, floods, landslides, climate changes, sea level rise, extreme meteorological events): this is where interdependent processes meet, requiring a holistic view to better live on and with our planet. Within this volume are included the Grand Challenge papers for the Earth Science field, authored by the Field Chief Editor, and several of the 16 online specialty sections, authored by the respective Chief Editors. These articles identify and describe the crucial challenges for Earth Science at the dawn of the 21st century.

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The volume of these proceedings is devoted to a wide variety of items, both in theory and experiment, of particle physics such as electroweak theory, fundamental symmetries, tests of the standard model and beyond, neutrino and astroparticle physics, hadron physics, gravitation and cosmology, physics at the present and future accelerator. Contents: Neutrino Physics Physics at Accelerators and Studies in SM and Beyond Astroparticle Physics and Cosmology CP Violation and Rare Decays Hadron Physics New Developments in Quantum Field Theory Problems of Intelligentsia Readership: Advanced undergraduates and graduate students, and professionals, both experimentalists and theoreticians, working in particle physics and high energy physics, gravitation and cosmology.

The Handbook of Clean Energy Systems brings together an international team of experts to present a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems. Consolidating information which is currently scattered across a wide variety of literature sources, the handbook covers a broad range of topics in this interdisciplinary research field including both fossil and renewable energy systems. The development of intelligent energy systems for efficient energy processes and mitigation technologies for the reduction of environmental pollutants is explored in depth, and environmental, social and economic impacts are also addressed. Topics covered include: Volume 1 - Renewable Energy: Biomass resources and biofuel production; Bioenergy Utilization; Solar Energy; Wind Energy; Geothermal Energy; Tidal Energy. Volume 2 - Clean Energy Conversion Technologies: Steam/Vapor Power Generation; Gas Turbines Power Generation; Reciprocating Engines; Fuel Cells; Cogeneration and Polygeneration. Volume 3 - Mitigation Technologies: Carbon Capture; Negative Emissions System; Carbon Transportation; Carbon Storage; Emission Mitigation Technologies; Efficiency Improvements and Waste Management; Waste to Energy. Volume 4 - Intelligent Energy Systems: Future Electricity Markets; Diagnostic and Control of Energy Systems; New Electric Transmission Systems; Smart Grid and Modern Electrical Systems; Energy Efficiency of Municipal Energy Systems; Energy Efficiency of Industrial Energy Systems; Consumer Behaviors; Load Control and Management; Electric Car and Hybrid Car; Energy Efficiency Improvement. Volume 5 - Energy Storage: Thermal Energy Storage; Chemical Storage; Mechanical Storage; Electrochemical Storage; Integrated Storage Systems. Volume 6 - Sustainability of Energy Systems: Sustainability Indicators, Evaluation Criteria, and Reporting; Regulation and Policy; Finance and Investment; Emission Trading; Modeling and Analysis of Energy Systems; Energy vs. Development; Low Carbon Economy; Energy Efficiencies and Emission Reduction. Key features: Comprising over 3,500 pages in 6 volumes, HCES presents a comprehensive overview of the latest research, developments and practical applications throughout all areas of clean energy systems, consolidating a wealth of information which is currently scattered across a wide variety of literature sources. In addition to renewable energy systems, HCES also covers processes for the efficient and clean conversion of traditional fuels such as coal, oil and gas, energy storage systems, mitigation technologies for the reduction of environmental pollutants, and the development of intelligent energy systems. Environmental, social and economic impacts of energy systems are also addressed in depth. Published in full colour throughout. Fully indexed with cross referencing within and between all six volumes. Edited by leading researchers from academia and industry who are internationally renowned and active in their respective fields. Published in print and online. The online version is a single publication (i.e. no updates), available for one-time purchase or through annual subscription.

Biophysical modelling of brain activity has a long and illustrious history and has recently profited from technological advances that furnish neuroimaging data at an unprecedented spatiotemporal resolution. Neuronal modelling is a very active area of research, with applications ranging from the characterization of neurobiological and cognitive processes, to constructing artificial brains in silico and building brain-machine interface and neuroprosthetic devices. Biophysical modelling has always benefited from interdisciplinary interactions between different and seemingly distant fields; ranging from mathematics and engineering to linguistics and psychology. This Research Topic aims to promote such interactions by promoting papers that contribute to a deeper understanding of neural activity as measured by fMRI or electrophysiology. In general, mean field models of neural activity can be divided into two classes: neural mass and neural field models. The main difference between these classes is that field models prescribe how a quantity characterizing neural activity (such as average depolarization of a neural population) evolves over both space and time as opposed to mass models, which characterize activity over time only; by assuming that all neurons in a population are located at (approximately) the same point. This Research Topic focuses on both classes of models and considers several aspects and their relative merits that: span from synapses to the whole brain; comparisons of their predictions with EEG and MEG spectra of spontaneous brain activity; evoked responses, seizures, and fitting data - to infer brain states and map physiological parameters.

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