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New Frontiers in Engineering Geology and the Environment Heinemann Educational Books

Infrared thermography (IRT) is a non-contact, non-invasive methodology which allows for detection of thermal energy that is radiated from objects in the infrared band of the electromagnetic spectrum, for conversion of such energy into a visible image (such as a surface temperature map). This feature represents a great potential to be exploited in a vast variety of fields from aerospace to civil engineering, to medicine, to agriculture, etc. However, IRT is still not adequately enclosed in industrial instrumentation and there are still potential users who might benefit from the use of such a technique and who are not aware of their existence. This e-book conveys information about basic IRT theory, infrared detectors, signal digitalization and applications of infrared thermography in many fields such as medicine, foodstuff conservation, fluid-dynamics, architecture, anthropology, condition monitoring, non destructive testing and evaluation of materials and structures. The volume promotes an exchange of information between the academic world and industry, and shares methodologies which were independently developed and applied in specific disciplines.

*Asante Twi* Springer

This is an African retelling of Euripides: an unnervingly topical story of a people and a beloved city destroyed by the brutality of war. The play was first performed in Lagos in 2003 under the distinguished director Chuck Mike, and subsequently toured the UK.

*Computational and Experimental Simulations in Engineering* Springer

This volume comprises select peer reviewed papers presented at the international conference - Advanced Research and Innovations in Civil Engineering (ARICE 2019). It brings together a wide variety of innovative topics and current developments in various branches of civil engineering. Some of the major topics covered include structural engineering, water resources engineering, transportation engineering, geotechnical engineering, environmental engineering, and remote sensing. The book also looks at emerging topics such as green building technologies, zero-energy buildings, smart materials, and intelligent transportation systems. Given its contents, the book will prove useful to students, researchers, and professionals working in the field of civil engineering.

*Infrared Thermography Recent Advances and Future Trends* Longman

This well-established series, the most popular in Nigeria, has been fully revised to reflect recent developments in mathematics education at junior secondary level and the views of the many users of the books. It has especially been revised to fully cover the requirements of the new NERDC Universal Basic Education Curriculum.

*Water Resource Systems Planning and Management* Springer Nature

Volume 2 of History of Construction Cultures contains papers presented at the 7ICCH – Seventh International Congress on Construction History, held at the Lisbon School of Architecture, Portugal, from 12 to 16 July, 2021. The conference has been organized by the Lisbon School of Architecture (FAUL), NOVA School of Social Sciences and Humanities, the Portuguese Society for Construction History Studies and the University of the Azores. The contributions cover the wide interdisciplinary spectrum of Construction History and consist on the most recent advances in theory and practical case studies analysis, following themes such as: - epistemological issues; - building actors; - building materials; - building machines, tools and equipment; - construction processes; - building services and techniques; - structural theory and analysis; - political, social and economic aspects; - knowledge transfer and cultural translation of construction cultures. Furthermore, papers presented at thematic sessions aim at covering important problematics, historical periods and different regions of the globe, opening new directions for Construction History research. We are what we build and how we build; thus, the study of Construction History is now more than ever at the centre of current debates as to the shape of a sustainable future for humankind. Therefore, History of Construction Cultures is a critical and indispensable work to expand our understanding of the ways in which everyday building activities have

been perceived and experienced in different cultures, from ancient times to our century and all over the world.

*A High School Geography Textbook of Zambia and the Sub-region* University of California Press

This open access book provides a theoretical framework and case studies on decision science for regional sustainability by integrating the natural and social sciences. The cases discussed include solution-oriented transdisciplinary studies on the environment, disasters, health, governance and human cooperation. Based on these case studies and comprehensive reviews of relevant works, including lessons learned from past failures for predictable surprises and successes in adaptive co-management, the book provides the reader with new perspectives on how we can co-design collaborative projects with various conflicts of interest and how we can transform our society for a sustainable future. The book makes a valuable contribution to the global research initiative Future Earth, promoting transdisciplinary studies to bridge the gap between science and society in knowledge generation processes and supporting efforts to achieve the UN's Sustainable Development Goals (SDGs). Compared to other publications on transdisciplinary studies, this book is unique in that evolutionary biology is used as an integrator for various areas related to human decision-making, and approaches social changes as processes of adaptive learning and evolution. Given its scope, the book is highly recommended to all readers seeking an integrated overview of human decision-making in the context of social transformation.

*Mathematics Phobia* Springer Science & Business Media

This book presents the key debates that the mathematics teacher will need to understand, reflect on and engage in as part of their professional development. Issues in Mathematics Teaching is suitable for those at initial training level right through to practising mathematics teachers. Its accessible structure enables the reader to pursue the issues raised as each chapter includes suggestions for further reading and questions for reflection or debate.

*Crack Analysis in Structural Concrete* Polity

This book provides essential information on the higher mathematical level of approximation over the gradually varied flow theory, also referred to as the Boussinesq-type theory. In this context, it presents higher order flow equations, together with their applications in a broad range of pertinent engineering and environmental problems, including open channel, groundwater, and granular material flows.

*Issues in Mathematics Teaching* CRC Press

The March 11, 2011, Great East Japan Earthquake and tsunami sparked a humanitarian disaster in northeastern Japan. They were responsible for more than 15,900 deaths and 2,600 missing persons as well as physical infrastructure damages exceeding \$200 billion. The earthquake and tsunami also initiated a severe nuclear accident at the Fukushima Daiichi Nuclear Power Station. Three of the six reactors at the plant sustained severe core damage and released hydrogen and radioactive materials. Explosion of the released hydrogen damaged three reactor buildings and impeded onsite emergency response efforts. The accident prompted widespread evacuations of local populations, large economic losses, and the eventual shutdown of all nuclear power plants in Japan. "Lessons Learned from the Fukushima Nuclear Accident for Improving Safety and Security of U.S. Nuclear Plants" is a study of the Fukushima Daiichi accident. This report examines the causes of the crisis, the performance of safety systems at the plant, and the responses of its operators following the earthquake and tsunami. The report then considers the lessons that can be learned and their implications for U.S. safety and storage of spent nuclear fuel and high-level waste, commercial nuclear reactor safety and security regulations, and design improvements. "Lessons Learned" makes recommendations to improve plant systems, resources, and operator training to enable effective ad hoc responses to severe accidents. This report's recommendations to incorporate

modern risk concepts into safety regulations and improve the nuclear safety culture will help the industry prepare for events that could challenge the design of plant structures and lead to a loss of critical safety functions. In providing a broad-scope, high-level examination of the accident, "Lessons Learned" is meant to complement earlier evaluations by industry and regulators. This in-depth review will be an essential resource for the nuclear power industry, policy makers, and anyone interested in the state of U.S. preparedness and response in the face of crisis situations.

*Philosophy and the Event* Springer

This book addresses one of the most important material categories: Materials used for constructions. A large percentage of the gross national product of most countries goes into infrastructure and buildings. This statement is true not only for the present but for most other periods in history, and for most cultures. This explains why understanding the behavior of construction materials has always been the subject of intense investigations. The construction industry consumes extreme volumes of material, and the growing demand for quality and safety require continuous improvement of materials and material compositions. A deep understanding of material behavior is essential to enable efficient construction: light-weight or heavily burdened structures ask for the development of innovative composites or new material compositions. Rapid economic growth and a dense and growing population require sensitive and sustainable use of resources. Finally efficient use of resources means extending the usage of existing structures, so non-destructive testing methods are needed to assess the safety and utility of these structures. Civil Engineers and Material Scientists from all over the world are openly discussing ideas for new materials, and for structural health monitoring. Over the last decade many innovations have come to fruition, primarily in the field of composites but also for improving the design of existing material. This is especially true for concrete, perhaps the most used material in the world – broadening its range of applications and improving performance.

*The Horn of My Love* Springer

Particulate products make up around 80% of chemical products, from all industry sectors. Examples given in this book include the construction materials, fine ceramics and concrete; the delicacies, chocolate and ice cream; pharmaceutical, powders, medical inhalers and sun screen; liquid and powder paints. Size distribution and the shape of the particles provide for different functionalities in these products. Some functions are general, others specific. General functions are powder flow and require – at the typical particulate concentrations of these products – that the particles cause adequate rheological behavior during processing and/or for product performance. Therefore, this book addresses particle packing as well as its relation to powder flow and rheological behavior. Moreover, general relationships to particle size are discussed for e.g. color and sensorial aspects of particulate products. Product-specific functionalities are often relevant for comparable product groups. Particle size distribution and shape provide, for example, the following functionalities: - dense particle packing in relation to sufficient strength is required in concrete construction, ceramic objects and pharmaceutical tablets - good sensorial properties (mouthfeel) to chocolate and ice cream - effective dissolution, flow and compression properties for pharmaceutical powders - adequate hiding power and effective coloring of paints for protection and the desired esthetical appeal of the objects - adequate protection of our body against sun light by sunscreen - effective particle transport and deposition to desired locations for medical inhalers and powder paints. Adequate particle size distribution, shape and porosity of particulate products have to be achieved in order to reach optimum product performance. This requires adequate management of design and development as well as sufficient knowledge of the underlying principles of physics and chemistry. Moreover, flammability, explosivity and other health hazards from powders, during handling, are taken into account. This is necessary, since great risks may be involved. In all aspects, the most relevant parameters of the size distribution (and particle shape) have to be selected. In this book, experts in the different product fields have contributed to the product chapters. This provides optimum information on what particulate aspects are most relevant for behavior and performance within specified industrial products and how optimum

results can be obtained. It differs from other books in the way that the critical aspects of different products are reported, so that similarities and differences can be identified. We trust that this approach will lead to improved optimization in design, development and quality of many particulate products.

*Issues in Upper Secondary Science Education* Springer Science & Business Media

This book is open access under a CC BY-NC 4.0 license. This revised, updated textbook presents a systems approach to the planning, management, and operation of water resources infrastructure in the environment. Previously published in 2005 by UNESCO and Deltares (Delft Hydraulics at the time), this new edition, written again with contributions from Jery R. Stedinger, Jozef P. M. Dijkman, and Monique T. Villars, is aimed equally at students and professionals. It introduces readers to the concept of viewing issues involving water resources as a system of multiple interacting components and scales. It offers guidelines for initiating and carrying out water resource system planning and management projects. It introduces alternative optimization, simulation, and statistical methods useful for project identification, design, siting, operation and evaluation and for studying post-planning issues. The authors cover both basin-wide and urban water issues and present ways of identifying and evaluating alternatives for addressing multiple-purpose and multi-objective water quantity and quality management challenges. Reinforced with cases studies, exercises, and media supplements throughout, the text is ideal for upper-level undergraduate and graduate courses in water resource planning and management as well as for practicing planners and engineers in the field.

*Advances in Civil Engineering* UNESCO

It has been ten years since I presented the paper entitled "A new model and theory on yield and failure of materials under the complex stress state" at the Sixth Conference on Mechanical Behaviour of Materials held at Kyoto, Japan in 1991. The proceedings edited by Jono and Inoue were published by Pergamon Press in 1991. At that conference Professor Murakami and I were invited to act as the chairperson and co-chairperson of a session, and I presented the paper at another session. Few days before the conference, I had given a seminar regarding the twin-shear strength theory and the unified strength theory at Nagoya Technological University. These were the first two presentations of the unified strength theory, although I had completed the research of the unified strength theory in 1990. The paper "Twin-shear strength theory and its generalization" was published in the English edition of *Sciences in China*, the top journal in China, in 1985. The original generalized twin-shear strength theory was presented at the 16 International Theoretical and Applied Mechanics Congress held at Copenhagen in Denmark and MPA (MaterialprüfungsAnstalt) at Stuttgart University, Germany in 1984. After this Congress I visited the MPA and School of Civil Engineering of Stuttgart University, and gave a seminar regarding the generalized twin-shear strength theory at MPA of Stuttgart University. Professor Otto Mohr (1835–1918) has had worked at the Stuttgart University. He was a very good professor, his lectures aroused great interest in his students.

*Creep and Hygrothermal Effects in Concrete Structures* Springer Nature

"New Frontiers in Engineering Geology and the Environment" collects selected papers presented at the International Symposium on Coastal Engineering Geology (ISCEG-Shanghai 2012). These papers involve many subjects – such as engineering geology, natural hazards, geoenvironment and geotechnical engineering – with a primary focus on geological engineering problems in coastal regions. The proceedings provide readers with the latest research results and engineering experiences from academic scientists, leading engineers and industry researchers who are interested in coastal engineering geology and the relevant fields. Yu Huang works at the Department of Geotechnical Engineering, Tongji University, China. Faquan Wu works at the Institute of Geology and Geophysics, Chinese Academy of Science, China and he is also the Secretary General of the International Association for Engineering Geology and the Environment. Zhenming Shi works at the Department of Geotechnical Engineering, Tongji University, China. Bin Ye works at the Department of Geotechnical Engineering, Tongji University, China.

*New Oxford secondary english course* Springer Nature

This open access book covers comprehensive but fundamental principles and concepts of disaster and accident prevention and mitigation, countermeasures, and recovery from disasters or accidents including treatment and care of the victims. Safety and security problems in our society involve not only engineering but also social, legal, economic, cultural, and psychological issues. The enhancement needed for societal safety includes comprehensive activities of all aspects from precaution to recovery, not only of people but also of governments. In this context, the authors, members of the Faculty of Societal Safety Science, Kansai University, conducted many discussions and concluded that the major strategy is consistent independently of the type and magnitude of disaster or accident, being also the principle of the foundation of our faculty. The topics treated in this book are

rather widely distributed but are well organized sequentially to provide a clear understanding of the principles of societal safety. In the first part the fundamental concepts of safety are discussed. The second part deals with risks in the societal and natural environment. Then follows, in the third part, a description of the quantitative estimation of risk and its assessment and management. The fourth part is devoted to disaster prevention, mitigation, and recovery systems. The final, fifth part presents a future perspective of societal safety science. Thorough reading of this introductory volume of societal safety science provides a clear image of the issues. This is largely because the Japanese have suffered often from natural disasters and not only have gained much valuable information about disasters but also have accumulated a store of experience. We are still in the process of reconstruction from the Great East Japan earthquake and the Fukushima nuclear power plant accident. This book is especially valuable therefore in studying the safety and security of people and their societies.

*Particulate Products* Butterworth-Heinemann

"With the collaboration of a number of dedicated teachers and their students, Susan Empson and Linda Levi have produced a volume that is faithful to the basic principles of CGI while at the same time covering new ground with insight and innovation." -Thomas P. Carpenter This highly anticipated follow-up volume to the landmark *Children's Mathematics: Cognitively Guided Instruction* addresses the urgent need to help teachers understand and teach fraction concepts. Fractions remain one of the key stumbling blocks in math education, and here Empson and Levi lay a foundation for understanding fractions and decimals in ways that build conceptual learning. They show how the same kinds of intuitive knowledge and sense making that provides the basis for children's learning of whole number arithmetic can be extended to fractions and decimals. Just as they did in *Children's Mathematics* and *Thinking Mathematically*, Empson and Levi provide important insights into children's thinking and alternative approaches to solving problems. Three themes appear throughout the book: building meaning for fractions and decimals through discussing and solving word problems the progression of children's strategies for solving fraction word problems and equations from direct modeling through relational thinking designing instruction that capitalizes on students' relational thinking strategies to integrate algebra into teaching and learning fractions. With illuminating examples of student work, classroom vignettes, "Teacher Commentaries" from the field, sample problems and instructional guides provided in each chapter, you'll have all the tools you need to teach fractions and decimals with understanding and confidence.

*Mathematics Education and Philosophy* Springer

This book provides a comparative look at key issues that characterize and contextualize upper secondary science education in sixteen countries in Oceania, South America, Asia, Europe, North America, Africa, and the Middle East, including links with elementary and early science, final assessment, and the secondary/tertiary education interface.

*Landscape Dynamics, Soils and Hydrological Processes in Varied Climates* National Academy Press

Contents Recent advancements in the performance of industrial products and structures are quite intense. Consequently, mechanical design of high accuracy is necessary to enhance their mechanical performance, strength and durability. The basis for their mechanical design can be provided through elastoplastic deformation analyses. For that reason, industrial engineers in the fields of mechanical, civil, architectural, aerospace engineering, etc. must learn pertinent knowledge relevant to elastoplasticity. Numerous books about elastoplasticity have been published since "Mathematical Theory of Plasticity", the notable book of R. Hill (1950), was written in the middle of the last century. That and similar books mainly address conventional plasticity models on the premise that the interior of a yield surface is an elastic domain. However, conventional plasticity models are applicable to the prediction of monotonic loading behavior, but are inapplicable to prediction of deformation behavior of machinery subjected to cyclic loading and civil or architectural structures subjected to earthquakes. Elastoplasticity has developed to predict deformation behavior under cyclic loading and non-proportional loading and to describe nonlocal, finite and rate-dependent deformation behavior.

*Women of Owu* Springer Science & Business Media

This book serves as a textbook for advanced courses as it introduces state-of-the-art information and the latest research results on diverse problems in the structural wind engineering field. The topics include wind climates, design wind speed estimation, bluff body aerodynamics and applications, wind-induced building responses, wind, gust factor approach, wind loads on components and cladding, debris impacts, wind loading codes and standards, computational tools and computational fluid dynamics techniques, habitability to building vibrations, damping in buildings, and suppression of wind-induced vibrations. Graduate students and expert engineers will find the book especially interesting and relevant to their research and work.

*Assessment of Student Achievement* Springer

jMetrik is a computer program for implementing classical and modern psychometric methods. It is designed to facilitate work in a production environment and to make advanced psychometric

procedures accessible to every measurement practitioner. *Applied Measurement with jMetrik* reviews psychometric theory and describes how to use jMetrik to conduct a comprehensive psychometric analysis. Each chapter focuses on a topic in measurement, describes the steps for using jMetrik, and provides one or more examples of conducting an analysis on the topic. Recommendations and guidance for practice is provided throughout the book.