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Elementary Quantum Mechanics in One Dimension Physics in One Dimension **Behavior and Culture in One Dimension** Mastering the Discrete Fourier Transform in One, Two or Several Dimensions **One-Dimensional Metals Highly Conducting One-Dimensional Solids Nonequilibrium Statistical Mechanics in One Dimension Topologically Protected States in One-Dimensional Systems** Algebraic Curves and One-dimensional Fields **Advances in One-Dimensional Wave Mechanics** The One-Dimensional Hubbard Model Design, Synthesis and Applications of One-Dimensional Chalcogenide Hetero-Nanostructures **Nonlinear Waves in One-dimensional Dispersive Systems One-Dimensional Man 50 Years On The One-dimensional Compression Method for Extraction of Pore Water from Unsaturated Tuff and Effects on Pore-water Chemistry Magnons in One-dimensional Spin Glass** Laws of Chaos *Vapor Explosions in One-dimensional Large Scale Geometry* **Virus Transport in One-dimensional Geochemically Heterogeneous Porous Media Some Investigations of Plasma Instabilitiies in One-dimensional Plasmas** *Fluctuations Near the Phase Transition in "one-dimensional" Superconductors* Fuel-coolant Interactions in One-dimensional Large Scale Geometry Using Iron Oxide Regularized Models of Phase Transformation in One-dimensional Nonlinear Elasticity *Dynamics of Bloch Domain Walls in One-dimensional Ferromagnetic Media* Stress-strain-time Behavior of Soil in One Dimensional Compression **An Analysis of the Depth Resolution Problem in One-dimensional Coded Aperture Imaging Topics from One-Dimensional Dynamics** *Theory of One-Dimensional Vlasov-Maxwell Equilibria* **Estimating Foundation Settlement by One-dimensional Consolidation Tests** *Non-nuclear Magnon Excitations in One-dimensional Antiferromagnets* **One-Dimensional Organometallic Materials One-dimensional Stable Distributions** One-Dimensional Finite Elements **Studies of One-dimensional Carbon-based Metals** *One-dimensional Transition Metal Oxides and Their Analogues for Batteries* **Computer Program for One-dimensional Nonequilibrium Reacting Gas Flow** A Collision Probability Method for One-dimensional Space-time Nuclear Reactor Kinetics *Problems of Related Elastic and Viscoelastic Buckling in One and Two Dimensions Eindimensionale Finite Elemente* **Elastic Plastic Boundary in One Dimensional Wave Propagation**

Vapor Explosions in One-dimensional Large Scale Geometry May 14 2021

Studies of One-dimensional Carbon-based Metals Dec 29 2019

Nonequilibrium Statistical Mechanics in One Dimension Apr 24 2022 Self-contained and up-to-date guide to one-dimensional reactions, dynamics, diffusion and adsorption.

Nonlinear Waves in One-dimensional Dispersive Systems Oct 19 2021

Advances in One-Dimensional Wave Mechanics Jan 22 2022 Advances in One-Dimensional Wave Mechanics provides a comprehensive description of the motion of microscopic particles in one-dimensional, arbitrary-shaped potentials based on the analogy between Quantum Mechanics and Electromagnetism. Utilizing a deeper understanding of the wave nature of matter, this book introduces the concept of the scattered sub-waves and a series of new analytical results using the Analytical Transfer Matrix (ATM) method. This work will be useful for graduate students majoring in physics, mainly in basic quantum theory, as well as for academic researchers exploring electromagnetism, particle physics, and wave mechanics and for experts in the field of optical waveguide and integrated optics. Prof. Zhuangqi Cao is a Professor of Physics at Shanghai Jiao Tong University, China. Dr. Cheng Yin is a teacher at Jiangsu Key Laboratory of Power Transmission and Distribution Equipment Technology, Hohai University, China.

Dynamics of Bloch Domain Walls in One-dimensional Ferromagnetic Media Nov 07 2020

Estimating Foundation Settlement by One-dimensional Consolidation Tests Jun 02 2020

Behavior and Culture in One Dimension Aug 29 2022 Behavior and Culture in One Dimension adopts a broad interdisciplinary approach, presenting a unified theory of sequences and their functions and an overview of how they underpin the evolution of complexity. Sequences of DNA guide the functioning of the living world, sequences of speech and writing choreograph the intricacies of human culture, and sequences of code oversee the operation of our literate technological civilization. These linear patterns function under their own rules, which have never been fully explored. It is time for them to get their due. This book explores the one-dimensional sequences that orchestrate the structure and behavior of our three-dimensional habitat. Using Gibsonian concepts of perception, action, and affordances, as well as the works of Howard Pattee, the book examines the role of sequences in the human behavioral and cultural world of speech, writing, and mathematics. The book offers a Darwinian framework for understanding human cultural evolution and locates the two major informational transitions in the origins of life and civilization. It will be of interest to students and researchers in ecological psychology, linguistics, cognitive science, and the social and biological sciences.

The One-dimensional Compression Method for Extraction of Pore Water from Unsaturated Tuff and Effects on Pore-water Chemistry Aug 17 2021

Virus Transport in One-dimensional Geochemically Heterogeneous Porous Media Apr 12 2021

Laws of Chaos Jun 14 2021 A hundred years ago it became known that deterministic systems can exhibit very complex

behavior. By proving that ordinary differential equations can exhibit strange behavior, Poincare undermined the founda tions of Newtonian physics and opened a window to the modern theory of nonlinear dynamics and chaos. Although in the 1930s and 1940s strange behavior was observed in many physical systems, the notion that this phenomenon was inherent in deterministic systems was never suggested. Even with the powerful results of S. Smale in the 1960s, complicated be havior of deterministic systems remained no more than a mathematical curiosity. Not until the late 1970s, with the advent of fast and cheap comput ers, was it recognized that chaotic behavior was prevalent in almost all domains of science and technology. Smale horseshoes began appearing in many scientific fields. In 1971, the phrase 'strange attractor' was coined to describe complicated long-term behavior of deterministic systems, and the term quickly became a paradigm of nonlinear dynamics. The tools needed to study chaotic phenomena are entirely different from those used to study periodic or quasi-periodic systems; these tools are analytic and measure-theoretic rather than geometric. For example, in throwing a die, we can study the limiting behavior of the system by viewing the long-term behavior of individual orbits. This would reveal incomprehensibly complex behavior. Or we can shift our perspective: Instead of viewing the long-term outcomes themselves, we can view the probabilities of these outcomes. This is the measure-theoretic approach taken in this book.

Problems of Related Elastic and Viscoelastic Buckling in One and Two Dimensions Aug 24 2019

One-dimensional Transition Metal Oxides and Their Analogues for Batteries Nov 27 2019 This book highlights the use of one-dimensional transition metal oxides and their analogue nanomaterials for battery applications. The respective chapters present examples of one-dimensional nanomaterials with different architectures, as well as a wide range of applications, e.g. as electrode materials for batteries. The book also addresses various means of synthesizing one-dimensional nanomaterials, e.g. electrospinning, the Kirkendall effect, Ostwald ripening, heterogeneous contraction, liquid-phase preparation, the vapor deposition approach and template-assisted synthesis. In closing, the structural design, optimization and promotion of one-dimensional transition metal oxide electrode materials are discussed. The book chiefly focuses on emerging configurable designs, including core-shell architectures, hollow architectures and other intricate architectures. In turn, the applications covered reflect essential recent advances in many modern types of battery. Accordingly, the book offers an informative and appealing resource for a wide readership in various fields of chemical science, materials and engineering.

Theory of One-Dimensional Vlasov-Maxwell Equilibria Jul 04 2020 This book describes and contextualises collisionless plasma theory, and in particular collisionless plasma equilibria. The Vlasov–Maxwell theory of collisionless plasmas is an increasingly important tool for modern plasma physics research: our ability to sustain plasma in a steady-state, and to mitigate instabilities, determines the success of thermonuclear fusion power plants on Earth; and our understanding of plasma aids in the prediction and mitigation of Space Weather effects on terrestrial environments and satellites. Further afield, magnetic reconnection is a ubiquitous energy release mechanism throughout the Universe, and modern satellites are now able to make in-situ measurements with kinetic scale resolution. To keep pace with these challenges and technological developments, a modern scientific discussion of plasma physics must enhance, and exploit, its ‘literacy’ in kinetic theory. For example, accurate analytical calculations and computer simulations of kinetic instabilities are predicated on a knowledge of Vlasov–Maxwell equilibria as an initial condition. This book highlights new fundamental work on Vlasov–Maxwell equilibria, of potential interest to mathematicians and physicists alike. Possible applications involve two of the most significant magnetic structures known to confine plasma and store energy: current sheets and flux tubes.

Design, Synthesis and Applications of One-Dimensional Chalcogenide Hetero-Nanostructures Nov 19 2021 This thesis focuses on the design and synthesis of novel one-dimensional colloidal chalcogenide hetero-nanostructures for enhancing solar energy conversion applications. Semiconducting nanomaterials are particular attractive for energy conversion due to the quantum confinement effects dictating their unique optical and electronic properties. Steering the photo-induced charge-flow based on unique bandgap alignment in semiconductor heterojunctions is critical for photo-electric/chemical conversion. The author presents the controllable preparation strategies to synthesize 1D chalcogenide hetero-nanostructures with various fine structures, further been used as excellent template materials for preparing other novel and complex hybrid architectures through a series of chemical transformations. The heterogeneous growth mechanisms of novel hetero-nanostructures is studied for developing a facile and general method to prepare more novel heterostructures. The band gap structure simulations, detailed charge carrier behaviour and unique solar energy conversion properties of the prepared hybrid nanostructures are deeply investigated. This work would open a new door to rationally designing hybrid systems for photo-induced applications.

One-Dimensional Finite Elements Jan 28 2020 This textbook presents finite element methods using exclusively one-dimensional elements. The aim is to present the complex methodology in an easily understandable but mathematically correct fashion. The approach of one-dimensional elements enables the reader to focus on the understanding of the principles of basic and advanced mechanical problems. The reader easily understands the assumptions and limitations of mechanical modeling as well as the underlying physics without struggling with complex mathematics. But although the description is easy it remains scientifically correct. The approach using only one-dimensional elements covers not only standard problems but allows also for advanced topics like plasticity or the mechanics of composite materials. Many examples illustrate the concepts and problems at the end of every chapter help to familiarize with the topics.

A Collision Probability Method for One-dimensional Space-time Nuclear Reactor Kinetics Sep 25 2019

One-Dimensional Man 50 Years On Sep 17 2021 Herbert Marcuse’s One-Dimensional Man has been called one of the most important books of the post-WWII era. Published in 1964, Marcuse’s work was highly critical of modern industrial capitalism — its exploitation of people and nature, its commodified aesthetics and consumer culture, the military-industrial complex and new forms of social control at the height of the Keynesian era. Contributors to this collection assess the key themes in One Dimensional Man from a diverse range of critical perspectives, including feminist, ecological, Indigenous and anti-capitalist. In light of the current struggles for emancipation from neoliberalism in Canada and across the globe, this critical look at Marcuse’s

influential work illustrates its relevance today and introduces his work to a new generation.
Highly Conducting One-Dimensional Solids May 26 2022 Although the problem of a metal in one dimension has long been known to solid-state physicists, it was not until the synthesis of real one-dimensional or quasi-one-dimensional systems that this subject began to attract considerable attention. This has been due in part to the search for high temperature superconductivity and the possibility of reaching this goal with quasi-one-dimensional substances. A period of intense activity began in 1973 with the report of a measurement of an apparently divergent conduc tivity peak in TfF-TCNQ. Since then a great deal has been learned about quasi-one-dimensional conductors. The emphasis now has shifted from trying to find materials of very high conductivity to the many interesting problems of physics and chemistry involved. But many questions remain open and are still under active investigation. This book gives a review of the experimental as well as theoretical progress made in this field over the last years. All the chapters have been written by scientists who have established themselves as experts in theoreti cal and experimental solid-state physics. The book is intended to be of use both to students and researchers entering the field as well as to more advanced physicists. The wealth of ideas and information it contains ought to be useful to anyone interested in quasi-one-dimensional systems, organic solids, or the search for novel conduction and superconduction mechanisms. The editors are very grateful to the authors for their collaboration in this book.
Elastic Plastic Boundary in One Dimensional Wave Propagation Jun 22 2019 The problem of moving boundaries separating elastic regions from plastic regions in one dimensional plastic wave propagation was considered by several investigators. These boundaries are called unloading waves if the material at a section changes from a plastic state to an elastic state as the wave passes the section. If the material changes from an elastic state to a plastic state, the moving boundary is called a loading wave. It was shown by other authors that the speed of an unloading wave or a loading wave must satisfy certain conditions if the time derivatives of the stress sigma sub t, on both sides of the elastic-plastic boundary are not zero. The purpose of the note is to clarify the situation in which sigma sub t and its higher derivatives are zero on both sides of the elastic-plastic boundary. (Author).
Non-nuclear Magnon Excitations in One-dimensional Antiferromagnets May 02 2020
One-Dimensional Organometallic Materials Mar 31 2020 This lecture note gives an analysis of electronic structure effects for a new class of molecular solids, i. e. one-dimensional organometal lic systems formed by transition-met. l atoms that are embedded in a matrix of macrocyclic organic ligands. These systems as well as orga nic metals have focused considerable interest due to the potential formation of high-mobility charge carriers. For the present author it is difficult to participate in this restriction on a single physical property (i. e. high electronic conductivities, technical applications, etc.). The lecture note is hopefully a small contribution to enhance the general understanding of certain electronic properties in organo metallic polymers. Those problems have been considered in the first place that seem to form a theoretical deficit in one specific field of solid-state chemistry. For the reader it will become evident that this contribution is a compromise always guided and limited by boundaries: i) An attempt to present problems to a ·chemical· audience which have their roots in solid-state physics. ii) The model calculations are limited by the currently available computational facilities. This ·boundary· implies that the compu tational data a~e subject to severe theoretical approximations. iii) Theorists have often a strong tendency to identify their numeri cal results and models with physical effects. Also this lecture note is not free of this almost universal trend. Nevertheless the author hopes that this text leads to some insight into a rather modern research field. M. e. B6hm I.
Topologically Protected States in One-Dimensional Systems Mar 24 2022 The authors study a class of periodic Schrodinger operators, which in distinguished cases can be proved to have linear band-crossings or ``Dirac points". They then show that the introduction of an ``edge", via adiabatic modulation of these periodic potentials by a domain wall, results in the bifurcation of spatially localized ``edge states". These bound states are associated with the topologically protected zero-energy mode of an asymptotic one-dimensional Dirac operator. The authors' model captures many aspects of the phenomenon of topologically protected edge states for two-dimensional bulk structures such as the honeycomb structure of graphene. The states the authors construct can be realized as highly robust TM-electromagnetic modes for a class of photonic waveguides with a phase-defect.
Some Investigations of Plasma Instabilitiies in One-dimensional Plasmas Mar 12 2021
Eindimensionale Finite Elemente Jul 24 2019 Die Einführung in die Methode der Finiten Elemente ist so konzipiert, dass sie nur anhand eindimensionaler Elemente erläutert wird. Dadurch bleibt die mathematische Beschreibung überschaubar, dennoch ist die Formulierung stets wissenschaftlich exakt. Das besondere Augenmerk liegt auf der Erläuterung der Methode und deren Verständnis. Leser lernen, die Annahmen und Ableitungen bei verschiedenen physikalischen Problemstellungen in der Strukturmechanik zu verstehen und Möglichkeiten und Grenzen der Methode der Finiten Elemente kritisch zu beurteilen.
One-Dimensional Metals Jun 26 2022 Low-dimensional solids are of fundamental interest in materials science due to their anisotropic properties. Written not only for experts in the field, this book explains the important concepts behind their physics and surveys the most interesting one-dimensional systems and discusses their present and emerging applications in molecular scale electronics. Chemists, polymer and materials scientists as well as students will find this book a very readable introduction to the solid-state physics of electronic materials. In this completely revised and expanded third edition the authors also cover graphene as one of the most important research topics in the field of low dimensional materials for electronic applications. In addition, the topics of nanotubes and nanoribbons are widely enlarged to reflect the research advances of the last years.
Elementary Quantum Mechanics in One Dimension Oct 31 2022 One of the key components of modern physics, quantum mechanics is used in such fields as chemistry, electrical engineering, and computer science. Central to quantum mechanics is Schrödinger's Equation, which explains the behavior of atomic particles and the energy levels of a quantum system. Robert Gilmore's innovative approach to Schrödinger's Equation offers new insight into quantum mechanics at an elementary level. Gilmore presents compact transfer matrix methods for solving quantum problems that can easily be implemented on a personal computer. He shows how to use these methods on a large variety of potentials, both simple and periodic. He shows how to

compute bound states, scattering states, and energy bands and describes the relation between bound and scattering states. Chapters on alloys, superlattices, quantum engineering, and solar cells indicate the practical application of the methods discussed. Gilmore's concise and elegant treatment will be of interest to students and professors of introductory and intermediate quantum courses, as well as professionals working in electrical engineering and applied mathematics.
Algebraic Curves and One-dimensional Fields Feb 20 2022 Algebraic curves have many special properties that make their study particularly rewarding. As a result, curves provide a natural introduction to algebraic geometry. In this book, the authors also bring out aspects of curves that are unique to them and emphasize connections with algebra. This text covers the essential topics in the geometry of algebraic curves, such as line bundles and vector bundles, the Riemann-Roch Theorem, divisors, coherent sheaves, and zeroth and firstcohomology groups. The authors make a point of using concrete examples and explicit methods to ensure that the style is clear and understandable. Several chapters develop the connections between the geometry of algebraic curves and the algebra of one-dimensional fields. This is an interesting topic that israrely found in introductory texts on algebraic geometry. This book makes an excellent text for a first course for graduate students.
Regularized Models of Phase Transformation in One-dimensional Nonlinear Elasticity Dec 09 2020
Stress-strain-time Behavior of Soil in One Dimensional Compression Oct 07 2020 Ground motion prediction formulas based upon elastic wave propagation in one-dimension (no strain transverse to the propagation direction) have been used widely in protective construction work. Actual soil materials exhibit many deviations from elastic behavior. This report assesses the probable influence of these non-elastic effects upon the accuracy of the above-mentioned prediction formulas, and upon the question of stress attenuation with depth. Three different models of soil behavior are assumed: a standard 3-element visco-elastic model (spring in series with spring-dashpot combination); a compacting model (straight line loading and unloading curves); and an "elastic" model in which any arbitrary shape may be assigned to the loading stress-strain curve. This report deals primarily with the first of these three models; the possible significance and probable importance of the third model are discussed briefly. By combining the theoretical and experimental results, it is shown that the elastic ground motion prediction formulas are generally valid (for cases where it is appropriate to think of one-dimensional motion); i.e. the possible effects of viscosity and inelasticity are no greater than uncertainties as to the order of magnitude of the compressibility of an in situ soil mass. (Author).
Fluctuations Near the Phase Transition in "one-dimensional" Superconductors Feb 08 2021
Physics in One Dimension Sep 29 2022 In 1966, E.H. Lieb and D.C. r1attis published a book on "Mathematical Physics in One Dimension" [Academic Press, New York and London] which is much more than just a collection of reprints and which in fact marked the beginnings of the rapidly growing interest in one-dimensional problems and materials in the 1970's. In their Foreword, Lieb and r~attis made the observation that " ... there now exists a vast literature on this subject, albeit one which is not indexed under the topic "one dimension" in standard indexing journals and which is therefore hard to research ... ". Today, the situation is even worse, and we hope that these Proceedings will be a valuable guide to some of the main current areas of one-dimensional physics. From a theoretical point of view, one-dimensional problems have always been very attractive. Many non-trivial models are soluble in one dimension, while they are only approximately understood in three dimensions. Therefore, the corresponding exact solutions serve as a useful test of approximate ma thematical methods, and certain features of the one-dimensional solution re main relevant in higher dimensions. On the other hand, many important phe nomena are strongly enhanced, and many concepts show up especially clearly in one-dimensional or quasi -one-dimensional systems. Among them are the ef fects of fluctuations, of randomness, and of nonlinearity; a number of in teresting consequences are specific to one dimension.
The One-Dimensional Hubbard Model Dec 21 2021 The description of solids at a microscopic level is complex, involving the interaction of a huge number of its constituents, such as ions or electrons. It is impossible to solve the corresponding many-body problems analytically or numerically, although much insight can be gained from the analysis of simplified models. An important example is the Hubbard model, which describes interacting electrons in narrow energy bands, and which has been applied to problems as diverse as high-Tc superconductivity, band magnetism, and the metal-insulator transition. This book presents a coherent, self-contained account of the exact solution of the Hubbard model in one dimension. The early chapters will be accessible to beginning graduate students with a basic knowledge of quantum mechanics and statistical mechanics. The later chapters address more advanced topics, and are intended as a guide for researchers to some of the more topical results in the field of integrable models.
Fuel-coolant Interactions in One-dimensional Large Scale Geometry Using Iron Oxide Jan 10 2021
Mastering the Discrete Fourier Transform in One, Two or Several Dimensions Jul 28 2022 The discrete Fourier transform (DFT) is an extremely useful tool that finds application in many different disciplines. However, its use requires caution. The aim of this book is to explain the DFT and its various artifacts and pitfalls and to show how to avoid these (whenever possible), or at least how to recognize them in order to avoid misinterpretations. This concentrated treatment of the DFT artifacts and pitfalls in a single volume is, indeed, new, and it makes this book a valuable source of information for the widest possible range of DFT users. Special attention is given to the one and two dimensional cases due to their particular importance, but the discussion covers the general multidimensional case, too. The book favours a pictorial, intuitive approach which is supported by mathematics, and the discussion is accompanied by a large number of figures and illustrative examples, some of which are visually attractive and even spectacular. Mastering the Discrete Fourier Transform in One, Two or Several Dimensions is intended for scientists, engineers, students and any readers who wish to widen their knowledge of the DFT and its practical use. This book will also be very useful for ‘naive’ users from various scientific or technical disciplines who have to use the DFT for their respective applications. The prerequisite mathematical background is limited to an elementary familiarity with calculus and with the continuous and discrete Fourier theory.
An Analysis of the Depth Resolution Problem in One-dimensional Coded Aperture Imaging Sep 05 2020

One-dimensional Stable Distributions Feb 29 2020 This is the first book specifically devoted to a systematic exposition of the essential facts known about the properties of stable distributions. In addition to its main focus on the analytic properties of stable laws, the book also includes examples of the occurrence of stable distributions in applied problems and a chapter on the problem of statistical estimation of the parameters determining stable laws. A valuable feature of the book is the author's use of several formally different ways of expressing characteristic functions corresponding to these laws.
Computer Program for One-dimensional Nonequilibrium Reacting Gas Flow Oct 26 2019 A computer program has been developed for one-dimensional nonequilibrium reacting gas flow. The program is written in Fortran IV and is compatible with the IBM 7044/7094 direct coupled digital computer system at Wright-Patterson Air Force Base, Ohio. In addition to nonequilibrium chemistry, the program includes nonequilibrium vibrational and electronic energy relaxation and coupling effects between these energy modes and the chemistry. The formulation is based on a one-dimensional flow matching either a prescribed pressure or area variation along a streamtube. Thermodynamic properties are computed by assuming an ideal gas mixture and the equilibration of translational and rotational temperatures. The internal energy modes, rotation, vibration, and electronic excitation, are considered uncoupled; and a rigid rotator, cut off simple harmonic oscillator, independent of the electronic state, is assumed. Excitation of vibrational and electronic energies are treated similarly with terms which account for relaxation and chemical reactions. The effects of nonequilibrium vibrational and electronic states on chemical rates are included in the coupling analysis. The vibrational relaxation time constants were obtained from the Millikan and White data while the electronic relaxation time constants were determined for nitrogen from an analysis of existing shock tube radiation measurements. The computer program was used to solve for the nonequilibrium flow in a hypersonic nozzle and for eight streamlines in the inviscid flow field over a spherically blunted nine-degree semiapex angle cone at zero angle of attack. (Author).
Topics from One-Dimensional Dynamics Aug 05 2020 One-dimensional dynamics owns many deep results and avenues of active mathematical research. Numerous inroads to this research exist for the advanced undergraduate or beginning graduate student. This book provides glimpses into one-dimensional dynamics with the hope that the results presented illuminate the beauty and excitement of the field. Much of this material is covered nowhere else in textbook format, some are mini new research topics in themselves, and novel connections are drawn with other research areas both inside and outside the text. The material presented here is not meant to be approached in a linear fashion. Readers are encouraged to pick and choose favourite topics. Anyone with an interest in dynamics, novice or expert alike, will find much of interest within.
Magnons in One-dimensional Spin Glass Jul 16 2021