

International Journal Of Mathematics And Applications

This is the first book to present a detailed discussion of both classical and recent results on the popular Cahn–Hilliard equation and some of its variants. The focus is on mathematical analysis of Cahn–Hilliard models, with an emphasis on thermodynamically relevant logarithmic nonlinear terms, for which several questions are still open. Initially proposed in view of applications to materials science, the Cahn–Hilliard equation is now applied in many other areas, including image processing, biology, ecology, astronomy, and chemistry. In particular, the author addresses applications to image inpainting and tumor growth. Many chapters include open problems and directions for future research. The Cahn-Hilliard Equation: Recent Advances and Applications is intended for graduate students and researchers in applied mathematics, especially those interested in phase separation models and their generalizations and applications to other fields. Materials scientists also will find this text of interest.

The purpose of this Open Access compendium, written by experienced researchers in mathematics education, is to serve as a resource for early career researchers in furthering their knowledge of the state of the field and disseminating their research through publishing. To accomplish this, the book is split into four sections: Empirical Methods, Important Mathematics Education Themes, Academic Writing and Academic Publishing, and a section Looking Ahead. The chapters are based on workshops that were presented in the Early Career Researcher Day at the 13th International Congress on Mathematical Education (ICME-13). The combination of presentations on methodological approaches

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and theoretical perspectives shaping the field in mathematics education research, as well as the strong emphasis on academic writing and publishing, offered strong insight into the theoretical and empirical bases of research in mathematics education for early career researchers in this field. Based on these presentations, the book provides a state-of-the-art overview of important theories from mathematics education and the broad variety of empirical approaches currently widely used in mathematics education research. This compendium supports early career researchers in selecting adequate theoretical approaches and adopting the most appropriate methodological approaches for their own research. Furthermore, it helps early career researchers in mathematics education to avoid common pitfalls and problems while writing up their research and it provides them with an overview of the most important journals for research in mathematics education, helping them to select the right venue for publishing and disseminating their work.

Archimedes to Hawking takes the reader on a journey across the centuries as it explores the eponymous physical laws--from Archimedes' Law of Buoyancy and Kepler's Laws of Planetary Motion to Heisenberg's Uncertainty Principle and Hubble's Law of Cosmic Expansion--whose ramifications have profoundly altered our everyday lives and our understanding of the universe. Throughout this fascinating book, Clifford Pickover invites us to share in the amazing adventures of brilliant, quirky, and passionate people after whom these laws are named. These lawgivers turn out to be a fascinating, diverse, and sometimes eccentric group of people. Many were extremely versatile polymaths--human dynamos with a seemingly infinite supply of curiosity and energy and who worked in many different areas in science. Others had non-conventional educations and displayed their unusual talents from an early age. Some experienced

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resistance to their ideas, causing significant personal anguish. Pickover examines more than 40 great laws, providing brief and cogent introductions to the science behind the laws as well as engaging biographies of such scientists as Newton, Faraday, Ohm, Curie, and Planck. Throughout, he includes fascinating, little-known tidbits relating to the law or lawgiver, and he provides cross-references to other laws or equations mentioned in the book. For several entries, he includes simple numerical examples and solved problems so that readers can have a hands-on understanding of the application of the law. A sweeping survey of scientific discovery as well as an intriguing portrait gallery of some of the greatest minds in history, this superb volume will engage everyone interested in science and the physical world or in the dazzling creativity of these brilliant thinkers.

Innovation, comparative advantage, and R & D competition; Case study evidence on R&D reactions; Imports, exports, and intra-industry trade; R&D reactions to import competition. International Journal of Neutrosophic Science (IJNS) is a peer-review journal publishing high quality experimental and theoretical research in all areas of Neutrosophic and its Applications. Papers concern with neutrosophic logic and mathematical structures in the neutrosophic setting. Besides providing emphasis on topics like artificial intelligence, pattern recognition, image processing, robotics, decision making, data analysis, data mining, applications of neutrosophic mathematical theories contributions to economics, finance, management, industries, electronics, and communications are promoted.

This book collects a selection of papers presented at ELECTRIMACS 2019 - The 13th international conference of the IMACS TC1 Committee, held in Salerno, Italy, on 21st-23rd May 2019. The conference papers deal with modelling, simulation, analysis, control, power management,

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design optimization, identification and diagnostics in electrical power engineering. The main application fields include electric machines and electromagnetic devices, power electronics, transportation systems, smart grids, electric and hybrid vehicles, renewable energy systems, energy storage, batteries, supercapacitors and fuel cells, wireless power transfer. The contributions included in Volume 2 are particularly focussed on methodological aspects, modelling and applied mathematics in the field of electrical engineering. Polynomials are well known for their ability to improve their properties and for their applicability in the interdisciplinary fields of engineering and science. Many problems arising in engineering and physics are mathematically constructed by differential equations. Most of these problems can only be solved using special polynomials. Special polynomials and orthonormal polynomials provide a new way to analyze solutions of various equations often encountered in engineering and physical problems. In particular, special polynomials play a fundamental and important role in mathematics and applied mathematics. Until now, research on polynomials has been done in mathematics and applied mathematics only. This book is based on recent results in all areas related to polynomials. Divided into sections on theory and application, this book provides an overview of the current research in the field of polynomials. Topics include cyclotomic and Littlewood polynomials; Descartes' rule of signs; obtaining explicit formulas and identities for polynomials defined by generating functions; polynomials with symmetric zeros; numerical investigation on the structure of the zeros of the q -tangent polynomials; investigation and synthesis of

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robust polynomials in uncertainty on the basis of the root locus theory; pricing basket options by polynomial approximations; and orthogonal expansion in time domain method for solving Maxwell's equations using paralleling-in-order scheme.

The mathematical combinatorics is a subject that applying combinatorial notion to all mathematics and all sciences for understanding the reality of things in the universe. The International J. Mathematical Combinatorics is a fully refereed international journal, sponsored by the MADIS of Chinese Academy of Sciences and published in USA quarterly, which publishes original research papers and survey articles in all aspects of mathematical combinatorics, Smarandache multi-spaces, Smarandache geometries, non-Euclidean geometry, topology and their applications to other sciences.

The first detailed study of the Convention on the Rights of the Child.

In the last 60 years, the use of the notion of category has led to a remarkable unification and simplification of mathematics. Conceptual Mathematics introduces this tool for the learning, development, and use of mathematics, to beginning students and also to practising mathematical scientists. This book provides a skeleton key that makes explicit some concepts and procedures that are common to all branches of pure and applied mathematics. The treatment does not presuppose knowledge of specific fields, but rather develops, from basic definitions, such elementary categories as discrete dynamical systems and directed

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graphs; the fundamental ideas are then illuminated by examples in these categories. This second edition provides links with more advanced topics of possible study. In the new appendices and annotated bibliography the reader will find concise introductions to adjoint functors and geometrical structures, as well as sketches of relevant historical developments.

The Effective Learning and Teaching in Higher Education series is packed with up-to-date advice, guidance and expert opinion on teaching in the key subjects in higher education today, and is backed up by the authority of the Institute for Learning and Teaching. This book covers all of the key issues surrounding the effective teaching of maths- a key subject in its own right, and one that forms an important part of many other disciplines. The book includes contributions from a wide range of experts in the field, and has a broad and international perspective.

ICCEDI is an international seminar that is held every two years organized by the Law and Citizenship Department, Faculty of Social Science Universitas Negeri Malang. The activities aim to discuss the theoretical and practical citizenship education that becomes needed for democracy in Indonesia and other countries with a view to build academic networks by gathering academics from various research institutes and universities. Citizenship education is an urgent need for the nation in order to build a civilized democracy for several reasons. Citizenship education is important for those who are politically illiterate and do not know how to work the democracy of its institutions. Another problem is the

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increasing political apathy, indicated by the limited involvement of citizens in the political process. These conditions show how citizenship education becomes the means needed by a democratic country like Indonesia. The book addresses a number of important issues, such as law issues, philosophy of moral values, political government, socio-cultural and Pancasila, and civic education. Finally, it offers a conceptual framework for future democracy. This book will be of interest to students, scholars, and practitioners, governance, and other related stakeholders.

Toric varieties form a beautiful class of algebraic varieties, which are often used as a testing ground for verifying general conjectures in algebraic geometry, for example, in Hilbert schemes, singularity theory, Mori theory, and so on. This volume gathers expanded versions of lectures presented during the summer school of "Geometry of Toric Varieties" in Grenoble (France). These lectures were given during the second and third weeks of the school. (The first week was devoted to introductory material.) The paper by D. Cox is an overview of recent work in toric varieties and its applications, putting the other contributions of the volume into perspective.

This book is a reference for librarians, mathematicians, and statisticians involved in college and research level mathematics and statistics in the 21st century. We are in a time of transition in scholarly communications in mathematics, practices which have changed little for a hundred years are giving way to new modes of accessing information. Where journals, books, indexes

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and catalogs were once the physical representation of a good mathematics library, shelves have given way to computers, and users are often accessing information from remote places. Part I is a historical survey of the past 15 years tracking this huge transition in scholarly communications in mathematics. Part II of the book is the bibliography of resources recommended to support the disciplines of mathematics and statistics. These are grouped by type of material. Publication dates range from the 1800's onwards. Hundreds of electronic resources-some online, both dynamic and static, some in fixed media, are listed among the paper resources. Amazingly a majority of listed electronic resources are free.

This third edition of the Handbook of International Research in Mathematics Education provides a comprehensive overview of the most recent theoretical and practical developments in the field of mathematics education. Authored by an array of internationally recognized scholars and edited by Lyn English and David Kirshner, this collection brings together overviews and advances in mathematics education research spanning established and emerging topics, diverse workplace and school environments, and globally representative research priorities. New perspectives are presented on a range of critical topics including embodied learning, the theory-practice divide, new developments in the early years, educating future mathematics education professors, problem solving in a 21st century curriculum, culture and mathematics learning, complex systems, critical analysis of design-

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based research, multimodal technologies, and e-textbooks. Comprised of 12 revised and 17 new chapters, this edition extends the Handbook's original themes for international research in mathematics education and remains in the process a definitive resource for the field.

The latest developments in computer science, theoretical software engineering, cognitive science, cognitive informatics, intelligence science, and the crystallization of accumulated knowledge by the fertilization of these areas, have led to the emergence of a transdisciplinary and convergence field known as software and intelligence sciences International Journal of Software Science and Computational Intelligence (IJSSCI) is a transdisciplinary, archived, and rigorously refereed journal that publishes and disseminates cutting-edge research findings and technological developments in the emerging fields of software science and computational intelligence, as well as their engineering applications. International Journal of Neutrosophic Science (IJNS) is a peer-review journal publishing high quality experimental and theoretical research in all areas of Neutrosophic and its Applications. IJNS is published quarterly. IJNS is devoted to the publication of peer-reviewed original research papers lying in the domain of neutrosophic sets and systems. Papers submitted for possible publication may concern with foundations, neutrosophic logic and mathematical structures in the neutrosophic setting. Besides providing emphasis on topics like artificial intelligence, pattern recognition, image processing, robotics, decision making, data analysis, data mining,

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applications of neutrosophic mathematical theories contributing to economics, finance, management, industries, electronics, and communications are promoted.

This book presents a simplified deliberation of fractional calculus, which will appeal not only to beginners, but also to various applied science mathematicians and engineering researchers. The text develops the ideas behind this new field of mathematics, beginning at the most elementary level, before discussing its actual applications in different areas of science and engineering. This book shows that the simple, classical laws based on Newtonian calculus, which work quite well under limiting and idealized conditions, are not of much use in describing the dynamics of actual systems. As such, the application of non-Newtonian, or generalized, calculus in the governing equations, allows the order of differentiation and integration to take on non-integer values.

Mathematics Teacher Noticing is the first book to examine research on the particular type of noticing done by teachers---how teachers pay attention to and make sense of what happens in the complexity of instructional situations. In the midst of all that is happening in a classroom, where do mathematics teachers look, what do they see, and what sense do they make of it? This groundbreaking collection begins with an overview of the construct of noticing and the various historical, theoretical, and methodological perspectives on teacher noticing. It then focuses on studies of mathematics teacher noticing in the context of teaching and learning and concludes by suggesting links to other constructs integral to teaching. By collecting the work of

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leaders in the field in one volume, the editors present the current state of research and provide ideas for how future work could further the field.

an examination of the field of mathematics and related structures in pure consciousness

The International J. Mathematical Combinatorics is a fully refereed international journal, sponsored by the MADIS of Chinese Academy of Sciences and published in USA quarterly, which publishes original research papers and survey articles in all aspects of mathematical combinatorics, Smarandache multi-spaces, Smarandache geometries, non-Euclidean geometry, topology and their applications to other sciences.

This book contributes to the field of mathematical problem solving by exploring current themes, trends and research perspectives. It does so by addressing five broad and related dimensions: problem solving heuristics, problem solving and technology, inquiry and problem posing in mathematics education, assessment of and through problem solving, and the problem solving environment. Mathematical problem solving has long been recognized as an important aspect of mathematics, teaching mathematics, and learning mathematics. It has influenced mathematics curricula around the world, with calls for the teaching of problem solving as well as the teaching of mathematics through problem solving. And as such, it has been of interest to mathematics education researchers for as long as the field has existed. Research in this area has generally aimed at understanding and relating the processes involved in solving problems to students' development of mathematical knowledge and problem solving skills. The accumulated knowledge and field developments have included conceptual frameworks for characterizing learners' success in problem solving activities, cognitive, metacognitive, social and affective analysis, curriculum

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proposals, and ways to promote problem solving approaches. For Engineering students & also useful for competitive Examination.

In the past, practical applications motivated the development of mathematical theories, which then became the subject of study in pure mathematics where abstract concepts are studied for their own sake. The activity of applied mathematics is thus intimately connected with research in pure mathematics, which is also referred to as theoretical mathematics. Theoretical and Applied Mathematics in International Business is an essential research publication that explores the importance and implications of applied and theoretical mathematics within international business, including areas such as finance, general management, sales and marketing, and supply chain management. Highlighting topics such as data mining, global economics, and general management, this publication is ideal for scholars, specialists, managers, corporate professionals, researchers, and academicians.

Discovering Discrete Dynamical Systems is a mathematics textbook designed for use in a student-led, inquiry-based course for advanced mathematics majors. Fourteen modules each with an opening exploration, a short exposition and related exercises, and a concluding project guide students to self-discovery on topics such as fixed points and their classifications, chaos and fractals, Julia and Mandelbrot sets in the complex plane, and symbolic dynamics. Topics have been carefully chosen as a means for developing student persistence and skill in exploration, conjecture, and generalization while at

the same time providing a coherent introduction to the fundamentals of discrete dynamical systems. This book is written for undergraduate students with the prerequisites for a first analysis course, and it can easily be used by any faculty member in a mathematics department, regardless of area of expertise. Each module starts with an exploration in which the students are asked an open-ended question. This allows the students to make discoveries which lead them to formulate the questions that will be addressed in the exposition and exercises of the module. The exposition is brief and has been written with the intent that a student who has taken, or is ready to take, a course in analysis can read the material independently. The exposition concludes with exercises which have been designed to both illustrate and explore in more depth the ideas covered in the exposition. Each module concludes with a project in which students bring the ideas from the module to bear on a more challenging or in-depth problem. A section entitled "To the Instructor" includes suggestions on how to structure a course in order to realize the inquiry-based intent of the book. The book has also been used successfully as the basis for an independent study course and as a supplementary text for an analysis course with traditional content.

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areas of mathematics and mathematical sciences. However, papers related to Smarandache's problems will be highly preferred.

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