

Linearizability And A Fake Lax Pair For A Nonlinear

This volume describes research on the differential geometry of foliations, in particular Riemannian foliations, done over the last few years. It can be read by graduate students and researchers with a background in differential geometry and Riemannian geometry. Of particular interest will be Hodge theory for the transversal Laplacian, and applications of the heat equation method to Riemannian foliations. There are chapters on the spectral theory for Riemannian foliations, on Connes' point of view of foliations as examples of noncommutative spaces, and a chapter on infinite-dimensional examples of Riemannian foliations.

AN ESSENTIAL GUIDE TO USING BLOCKCHAIN TO PROVIDE FLEXIBILITY, COST-SAVINGS, AND SECURITY TO DATA MANAGEMENT, DATA ANALYSIS, AND INFORMATION SHARING Blockchain for Distributed Systems Security contains a description of the properties that underpin the formal foundations of Blockchain technologies and explores the practical issues for deployment in cloud and Internet of Things (IoT) platforms. The authors—noted experts in the field—present security and privacy issues that must be addressed for Blockchain technologies to be adopted for civilian and military domains. The book covers a range of topics including data provenance in cloud storage, secure IoT models, auditing architecture, and empirical validation of permissioned Blockchain platforms. The book's security and privacy analysis helps with an understanding of the basics of Blockchain and it explores the quantifying impact of the new attack surfaces introduced by Blockchain technologies and platforms. In addition, the book contains relevant and current updates on the topic. This important resource: Provides an overview of Blockchain-based secure data management and storage for cloud and IoT Covers cutting-edge research findings on topics including invariant-based supply chain protection, information sharing framework, and trust worthy information federation Addresses security and privacy concerns in Blockchain in key areas, such as preventing digital currency miners from launching attacks against mining pools, empirical analysis of the attack surface of Blockchain, and more Written for researchers and experts in computer science and engineering, Blockchain for Distributed Systems Security contains the most recent information and academic research to provide an understanding of the application of Blockchain technology.

The Proceedings of the ICM publishes the talks, by invited speakers, at the conference organized by the International Mathematical Union every 4 years. It covers several areas of Mathematics and it includes the Fields Medal and Nevanlinna, Gauss and Leelavati Prizes and the Chern Medal laudatios.

From the psychomagical guru who brought you *The Holy Mountain* and *Where the Bird Sings Best* comes a supernatural love-and-horror story in which a beautiful albino giantess unleashes the slaving animal lurking inside the men of a small village. When two women—an amnesiac goddess and her protector, a leather-tough woman called Crabby—arrive in a Chilean desert town, Albina's otherworldly allure and unfettered sensuality turn men into wild beasts. Chased by a clubfooted corrupt cop, evil corporate overlords, giant-hare-riding narcos, and Himalayan cultists, Albina and Crabby must find a magical cactus that will cure Albina and the men's monstrous affliction before the town consumes itself in an orgy of lust and violence. *Albina and the Dog-Men* is Alejandro Jodorowsky's darkly funny, shocking, and surreal hybrid of mystical folktale, road novel, horror story, and social parable, ultimately uniting in a universal story of love against the odds and what makes us human. Praise for *Albina and the Dog-Men* "Deeply psychological and mysterious, the book will stimulate the imagination of the reader's mind to the extreme." —Marina Abramovi? "In his latest novel, Jodorowsky builds on his multi-decade long assault of the public imagination . . . a fantastical and genre-defying parable of love and friendship. . . . Throughout this dark dream of a novel, Jodorowsky's writing is comic and occasionally mesmerizing. It is also ripe with horror and philosophical questions about what it means to belong, everywhere and nowhere. And while some of the subject matter is disturbing, it often carries the air of something ancient that you read children by a fire. For years Jodorowsky has proven the intensity of his imagination, and how far he is willing to go to present his singular vision to the world. He is a fully realized artist whose tales demand attention. At its core, *Albina and the Dog-Men* is a love story about two people committed to one another's survival and to discovering their potential. And, as with life, it is sometimes only through the weathering of a storm that our true capacities are made clear." —Juan Vidal, NPR Books "[*Albina and the Dog-Men*] may be the ultimate piece of Jodorowsky arcana, a mind-bending adventure story on par with his wildest cinematic visions. . . . A surrealist novel par excellence, *Albina and the Dog-Men* is a dream, a prophecy, a hallucination, and a transfiguration such as only Jodorowsky could induce." —Publishers Weekly "Composed like a feverish fairytale, *Albina and the Dog-Men* is a South American parable of self-acceptance and belonging that is fueled by prurience and colored with vivid, hallucinogenic details. . . . No moment of Jodorowsky's book is at all predictable or familiar, and those who have a taste for the uncanny will be in awe over its undulations into strange, even godly, territory. The sensuality of the prose thickens as Albina's situation becomes more more tenuous, resulting in heady and appealing constructions. . . . As Albina and her followers traipse over barren lands and into forests protected by ancient Incans, the novel winds toward territory both magical and needfully human. The surreal methods of redemption in the novel's final pages prove both glorious and moving. Jodorowsky's is a work of unforgettable weirdness, a work whose movements are directed by sometimes violent mysticism and whose final lessons may speak to all who have ever dreamed of transformation." —Michelle Anne Schingler, Foreword Reviews, Five-Star Review

An emerging field of discrete differential geometry aims at the development of discrete equivalents of notions and methods of classical differential geometry. The latter appears as a limit of a refinement of the discretization. Current interest in discrete differential geometry derives not only from its importance in pure mathematics but also from its applications in computer graphics, theoretical physics, architecture, and numerics. Rather unexpectedly, the very basic structures of discrete differential geometry turn out to be related to the theory of Integrable systems. One of the main goals of this book is to reveal this integrable structure of discrete differential geometry. The intended audience of this book is threefold. It is a textbook on discrete differential geometry and integrable systems suitable for a one semester graduate course. On the other hand, it is addressed to specialists in geometry and mathematical physics. It reflects the recent progress in discrete differential geometry and contains many original results. The third group of readers at which this book is targeted is formed by specialists in geometry processing, computer graphics, architectural design, numerical simulations, and animation. They may find here answers to the question "How do we discretize differential geometry?" arising in their specific field.

Explore the differences between ICOs, cryptocurrencies, and tokens (offerings), enabling the reader to understand the ICO landscape, how millions were raised in minutes, and where the future of the tokenized economy is heading. Take a real-time journey, cutting through the myths, understanding token choices available to everyone. Key Features Interviews with key figures in Tokenomics Unbiased evaluation and comparison of the different offerings Conceptual analysis of the market's reaction League table showing current exposure An account of the theoretical and current legal foundations of alt coins and tokens A complete introduction to the phases of an initial coin offering Book Description Tokenomics is the economy of this new world. This is a no-holds-barred, in-depth exploration of the way in which we can participate in the blockchain economy. The reader will learn the basics of bitcoin, blockchains, and tokenomics; what the very first ICO was; and how over a period of 5 years, various projects managed to raise the enormous sums of money they did. The book then provides insights from ICO experts and looks at what the future holds. By comparing the past, current, and future of this technology, the book will inform anyone, whatever motivates their interest. The crypto shift of blockchains, ICOs, and tokens is much more than just buying bitcoins, creating tokens, or raising millions in a minute in an

ICO. It is a new paradigm shift from centralized to decentralized, from closed to open, and from opaqueness to transparency. ICOs and the creation of tokens during the craze of 2017 needed a lot of preparation, an understanding of cryptocurrencies and of emerging legal frameworks, but this has spurred a new movement to tokenize the world. The author gives an unbiased, authoritative picture of the current playing field, exploring the token opportunities and provides a unique insight into the developing world of this tokenized economy. This book will nourish hungry minds wanting to grow their knowledge in this fascinating area. What you will learn The background of ICOs and how they came to be The difference between a coin and a token, a utility and a security, and all the other acronyms you're likely to ever encounter How these ICOs raised enormous sums of money Tokenomics: structuring the token with creativity Why it's important to play nicely with the regulators A sneak peak into the future of ICOs from leaders in the industry Who this book is for With the media hype about bitcoin, this book appeals to anyone, from those with a general interest in anything crypto, or those with some knowledge of the nuances between cryptocurrency, ICOs, IPOs and the Token economy.

The Handbook of Nonlinear Partial Differential Equations is the latest in a series of acclaimed handbooks by these authors and presents exact solutions of more than 1600 nonlinear equations encountered in science and engineering--many more than any other book available. The equations include those of parabolic, hyperbolic, elliptic and other types, and the authors pay special attention to equations of general form that involve arbitrary functions. A supplement at the end of the book discusses the classical and new methods for constructing exact solutions to nonlinear equations. To accommodate different mathematical backgrounds, the authors avoid wherever possible the use of special terminology, outline some of the methods in a schematic, simplified manner, and arrange the equations in increasing order of complexity. Highlights of the Handbook:

For graduate and executive level MIS students, and practicing IS managers. A thorough and practical guide to IT management practices and issues. Managing Information Technology provides comprehensive coverage of IS management practices and technology trends for advanced students and managers. Through an approach that offers up-to-date chapter content and full-length case studies, this text presents a unique set of materials that educators can customize to their students' needs. The sixth edition has been thoroughly updated and streamlined to reflect current IS practices.

This book focuses treatable This class on exactly many' body problems. does not include most We are therefore reminded "of physical problems. the of the man home late at after an alcoholic who, story returning night the for his under he was a knew, evening, scanning ground key lamppost; be that he had it somewhere but under the to sure, dropped else, only Yet was there to conduct a searcW' . light lamppost enough proper we feel the interest for such models is nowadays sufficiently widespread because of their their mathematical relevance and their multi beauty, farious that need be made for no our apologies applicative potential choice. In whoever undertakes to read this book will know from any case, its title what she is in for! Yet this title a of it some may require explanations: gloss (including its extended inside front follows. version, see cover) and nonrelativistic "Classical" we mean nonquantal (although By consider the which indeed some are Ruijsenaars Schneider models, treated in this relativistic versions as known, nonre book, of, previously lativistic is focussed see our on models; below): presentation mainly of whose time evolution is determined many body point particles systems Newtonian of motion to by equations (acceleration proportional force).

The idea of devoting a complete book to this topic was born at one of the Workshops on Nonlinear and Turbulent Processes in Physics taking place regularly in Kiev. With the exception of E. D. Siggia and N. Ercolani, all authors of this volume were participants at the third of these workshops. All of them were acquainted with each other and with each other's work. Yet it seemed to be somewhat of a discovery that all of them were and are trying to understand the same problem - the problem of integrability of dynamical systems, primarily Hamiltonian ones with an infinite number of degrees of freedom. No doubt that they (or to be more exact, we) were led to this by the logical process of scientific evolution which often leads to independent, almost simultaneous discoveries. Integrable, or, more accurately, exactly solvable equations are essential to theoretical and mathematical physics. One could say that they constitute the "mathematical nucleus" of theoretical physics whose goal is to describe real clas sical or quantum systems. For example, the kinetic gas theory may be considered to be a theory of a system which is trivially integrable: the system of classical noninteracting particles. One of the main tasks of quantum electrodynamics is the development of a theory of an integrable perturbed quantum system, namely, noninteracting electromagnetic and electron-positron fields. This proceedings volume gathers together selected works from the 2018 "Asymptotic, Algebraic and Geometric Aspects of Integrable Systems" workshop that was held at TSIMF Yau Mathematical Sciences Center in Sanya, China, honoring Nalini Joshi on her 60th birthday. The papers cover recent advances in asymptotic, algebraic and geometric methods in the study of discrete integrable systems. The workshop brought together experts from fields such as asymptotic analysis, representation theory and geometry, creating a platform to exchange current methods, results and novel ideas. This volume's articles reflect these exchanges and can be of special interest to a diverse group of researchers and graduate students interested in learning about current results, new approaches and trends in mathematical physics, in particular those relevant to discrete integrable systems.

ABC's, First Words, Numbers and Shapes, Colors and Opposites including a special note to parents. Children will enjoy hours of learning fun in each 32-page bi-lingual book. All four books are designed specifically to teach and reinforce basic concepts for preschool through early elementary school children.

Gears in one form or another are part of most mechanisms, but they are by no means as simple as they may appear. This book explains simply and comprehensively the underlying theory involved, and in its second part, how to cut gears on a lathe or milling machine.

Hacking Secret Ciphers with Python not only teaches you how to write in secret ciphers with paper and pencil. This book teaches you how to write your own cipher programs and also the hacking programs that can break the encrypted messages from these ciphers. Unfortunately, the programs in this book won't get the reader in trouble with the law (or

rather, fortunately) but it is a guide on the basics of both cryptography and the Python programming language. Instead of presenting a dull laundry list of concepts, this book provides the source code to several fun programming projects for adults and young adults.

Derived algebraic geometry is a far-reaching generalization of algebraic geometry. It has found numerous applications in other parts of mathematics, most prominently in representation theory. This volume develops deformation theory, Lie theory and the theory of algebroids in the context of derived algebraic geometry. To that end, it introduces the notion of inf-scheme, which is an infinitesimal deformation of a scheme and studies ind-coherent sheaves on such. As an application of the general theory, the six-functor formalism for D-modules in derived geometry is obtained. This volume consists of two parts. The first part introduces the notion of ind-scheme and extends the theory of ind-coherent sheaves to inf-schemes, obtaining the theory of D-modules as an application. The second part establishes the equivalence between formal Lie group(oids) and Lie algebr(oids) in the category of ind-coherent sheaves. This equivalence gives a vast generalization of the equivalence between Lie algebras and formal moduli problems. This theory is applied to study natural filtrations in formal derived geometry generalizing the Hodge filtration.

This treatment presents most of the methods for solving ordinary differential equations and systematic arrangements of more than 2,000 equations and their solutions. The material is organized so that standard equations can be easily found. Plus, the substantial number and variety of equations promises an exact equation or a sufficiently similar one. 1960 edition.

Many companies, from startups to Fortune 500 companies alike, use Node.js to build performant backend services. And engineers love Node.js for its approachable API and familiar syntax. Backed by the world's largest package repository, Node's enterprise foothold is only expected to grow. In this hands-on guide, author Thomas Hunter II proves that Node.js is just as capable as traditional enterprise platforms for building services that are observable, scalable, and resilient. Intermediate to advanced Node.js developers will find themselves integrating application code with a breadth of tooling from each layer of a modern service stack. Learn why running redundant copies of the same Node.js service is necessary Know which protocol to choose, depending on the situation Fine-tune your application containers for use in production Track down errors in a distributed setting to determine which service is at fault Simplify app code and increase performance by offloading work to a reverse proxy Build dashboards to monitor service health and throughput Find out why so many different tools are required when operating in an enterprise environment

Nearly 200 problems, each with a detailed, worked-out solution, deal with the properties and applications of the gamma and beta functions, Legendre polynomials, and Bessel functions. 1971 edition.

This book grew out of lecture notes I used in a course on difference equations that I taught at Trinity University for the past five years. The classes were largely populated by juniors and seniors majoring in Mathematics, Engineering, Chemistry, Computer Science, and Physics. This book is intended to be used as a textbook for a course on difference equations at the level of both advanced undergraduate and beginning graduate. It may also be used as a supplement for engineering courses on discrete systems and control theory. The main prerequisites for most of the material in this book are calculus and linear algebra. However, some topics in later chapters may require some rudiments of advanced calculus. Since many of the chapters in the book are independent, the instructor has great flexibility in choosing topics for the first one-semester course. A diagram showing the interdependence of the chapters in the book appears following the preface. This book presents the current state of affairs in many areas such as stability, Z-transform, asymptoticity, oscillations and control theory. However, this book is by no means encyclopedic and does not contain many important topics, such as Numerical Analysis, Combinatorics, Special functions and orthogonal polynomials, boundary value problems, partial difference equations, chaos theory, and fractals. The nonselection of these topics is dictated not only by the limitations imposed by the elementary nature of this book, but also by the research interest (or lack thereof) of the author.

This book shows how Lie group and integrability techniques, originally developed for differential equations, have been adapted to the case of difference equations. Difference equations are playing an increasingly important role in the natural sciences. Indeed, many phenomena are inherently discrete and thus naturally described by difference equations. More fundamentally, in subatomic physics, space-time may actually be discrete. Differential equations would then just be approximations of more basic discrete ones. Moreover, when using differential equations to analyze continuous processes, it is often necessary to resort to numerical methods. This always involves a discretization of the differential equations involved, thus replacing them by difference ones. Each of the nine peer-reviewed chapters in this volume serves as a self-contained treatment of a topic, containing introductory material as well as the latest research results and exercises. Each chapter is presented by one or more early career researchers in the specific field of their expertise and, in turn, written for early career researchers. As a survey of the current state of the art, this book will serve as a valuable reference and is particularly well suited as an introduction to the field of symmetries and integrability of difference equations.

Therefore, the book will be welcomed by advanced undergraduate and graduate students as well as by more advanced researchers.

Tom Bingham (1933-2010) was the 'greatest judge of our time' (The Guardian), a towering figure in modern British public life who championed the rule of law and human rights inside and outside the courtroom. The Business of Judging collects Bingham's most important writings during his period in judicial office before the House of Lords. The papers collected here offer Bingham's views on a wide range of issues, ranging from the ethics of judging to the role of law in a diverse society. They include his reflections on the main contours of English public and criminal law, and his early work on the incorporation of the European Convention on Human Rights and reforming the constitution. Written in the accessible style that made The Rule of Law (2010) a popular success, the book will be essential reading for all those working in law, and an engaging inroad to understanding the role of the law and courts in public life for the general reader.

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 foundations 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 behavior of deterministic systems remained

no more than a mathematical curiosity. Not until the late 1970s, with the advent of fast and cheap computers, 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.

Classic book, addressed to all lovers of number theory.

Discrete Painlevé equations are nonlinear difference equations, which arise from translations on crystallographic lattices. The deceptive simplicity of this statement hides immensely rich mathematical properties, connecting dynamical systems, algebraic geometry, Coxeter groups, topology, special functions theory, and mathematical physics. This book necessarily starts with introductory material to give the reader an accessible entry point to this vast subject matter. It is based on lectures that the author presented as principal lecturer at a Conference Board of Mathematical Sciences and National Science Foundation conference in Texas in 2016. Instead of technical theorems or complete proofs, the book relies on providing essential points of many arguments through explicit examples, with the hope that they will be useful for applied mathematicians and physicists.

With World War II raging and his father fighting overseas in Europe, eleven-year-old Hobie Hanson is determined to do his part to help his family and his country, even if it means giving up his beloved German shepherd, Duke. Hoping to help end the war and bring his dad home faster, Hobie decides to donate Duke to Dogs for Defense, an organization that urges Americans to "loan" their pets to the military to act as sentries, mine sniffers, and patrol dogs. Hobie immediately regrets his decision and tries everything he can to get Duke back, even jeopardizing his friendship with the new boy at school. But when his father is taken prisoner by the Germans, Hobie realizes he must let Duke go and reach deep within himself to be brave. Will Hobie ever see Duke, or his father, again? With powerful storytelling and gripping emotion, critically acclaimed author Kirby Larson explores the many ways bravery and love help us to weather the most difficult times.

Derived algebraic geometry is a far-reaching generalization of algebraic geometry. It has found numerous applications in various parts of mathematics, most prominently in representation theory. This volume develops the theory of ind-coherent sheaves in the context of derived algebraic geometry. Ind-coherent sheaves are a "renormalization" of quasi-coherent sheaves and provide a natural setting for Grothendieck-Serre duality as well as geometric incarnations of numerous categories of interest in representation theory. This volume consists of three parts and an appendix. The first part is a survey of homotopical algebra in the setting of ∞ -categories and the basics of derived algebraic geometry. The second part builds the theory of ind-coherent sheaves as a functor out of the category of correspondences and studies the relationship between ind-coherent and quasi-coherent sheaves. The third part sets up the general machinery of the $\mathrm{IndCoh}(X)$ -category of correspondences needed for the second part. The category of correspondences, via the theory developed in the third part, provides a general framework for Grothendieck's six-functor formalism. The appendix provides the necessary background on $\mathrm{IndCoh}(X)$ -categories needed for the third part.

Lectures on hyperbolic geometry, dynamics in several complex variables, convex geometry, and volume estimation.

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 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.

This monograph presents new discrete group methods for analyzing ordinary differential equations. The discrete groups of transformations of the Abel equation, Emden-Fowler equation, homogeneous equation in the extended sense, and Liennar equation are studied in detail. Many new integrable equations of the above types are described. Some concrete equations and problems often encountered in practical applications are analyzed.

Several data banks around the world are accumulating DNA sequences at a feverish rate, with tremendous potential for furthering our knowledge of how biological systems code and pass on information. The sophisticated mathematical analysis of that data is just beginning. The Eighteenth Annual Symposium on Some Mathematical Questions in Biology was held in conjunction with the Annual Meeting of the AAAS and brought together speakers knowledgeable in both biology and mathematics to discuss these developments and to emphasize the need for rigorous, efficient computational tools. These computational tools include biologically relevant definitions of sequence similarity and string matching algorithms. The solutions for some of these problems have great generality; the string matching methods first developed for biological sequences have now been applied to areas such as geology, linguistics, and speech recognition. There is a great potential here for creating of new mathematics to handle this growing data base, with new applications for many areas of mathematics, computer science, and statistics.

This eBook is packaged with supporting literary and visual elements regarding the subjectivity of Enoch. The core, and complete English translation of 1 Enoch (Ethiopian Enoch) has been remastered from the original R.H. Charles version. Chapters along with their headings have been logically organized into a more readable book like format rather than the un-organized Charles manuscript. An original page scan of the Ethiopic manuscript is additionally included along with an array of supporting extras: Dead Sea Scrolls Chart, Book of Adam and Eve, Book of Giants, Fossil Evidence of Giants, Fossil Evidence of Noah's Ark, Testament of Solomon, References to Enoch in Other Manuscripts, General Biblical Timelines, Spiritual Charts, Enochian Calendar, 4,000 Year Old Science, How to Know You're Saved, and several others. These extras were added to this Enoch package due to their supporting informational elements. This eBook is void of errors and due to its magnitude is not free like other versions I have released.

This book provides a fundamental understanding of global illumination algorithms. It discusses a broad class of algorithms for realistic image synthesis and introduces a theoretical basis for the algorithms presented. Topics include: physics of light transport, Monte Carlo methods, general strategies for solving the rendering equation, stochastic path-tracing algorithms such as ray tracing and light tracing, stochastic radiosity including photon density estimation and hierarchical Monte Carlo radiosity, hybrid algorithms, metropolis light transport, irradiance caching, photon mapping and instant radiosity, beyond the rendering equation, image display and human perception. If you want to design and implement a global illumination rendering system or need to use and modify an existing system for your specific purpose, this book will give you the tools and the understanding to do so.

The subject this volume is explicit integration, that is, the analytical as opposed to the numerical solution, of all kinds of nonlinear differential equations (ordinary differential, partial differential, finite difference). Such equations describe many physical phenomena, their analytic solutions (particular solutions, first integral, and so forth) are in many cases preferable to numerical computation, which may be long, costly and, worst, subject to numerical errors. In addition, the analytic approach can provide a global knowledge of the solution, while the numerical approach is always local. Explicit integration is based on the powerful methods based on an in-depth study of singularities, that were first used by Poincaré and subsequently developed by Painlevé in his famous Leçons de Stockholm of 1895. The recent interest in the subject and in the equations investigated by Painlevé dates back about thirty years ago, arising from three, apparently disjoint, fields: the Ising model of statistical physics and field theory, propagation of solitons, and dynamical systems. The chapters in this volume, based on courses given at Cargèse 1998, alternate mathematics and physics; they are intended to bring researchers entering the field to the level of present research.

Difference equations are playing an increasingly important role in the natural sciences. Indeed many phenomena are inherently discrete and are naturally described by difference equations. Phenomena described by differential equations are therefore approximations of more basic discrete ones. Moreover, in their study it is very often necessary to resort to numerical methods. This always involves a discretization of the differential equations involved, thus replacing them by difference equations. This book shows how Lie group and integrability techniques, originally developed for differential equations, have been adapted to the case of difference ones. Each of the eleven chapters is a self-contained treatment of a topic, containing introductory material as well as the latest research results. The book will be welcomed by graduate students and researchers seeking an introduction to the field. As a survey of the current state of the art it will also serve as a valuable reference.

Considering how culturally indispensable digital technology is today, it is ironic that computer-generated art was attacked when it burst onto the scene in the early 1960s. In fact, no other twentieth-century art form has elicited such a negative and hostile response. When the Machine Made Art examines the cultural and critical response to computer art, or what we refer to today as digital art. Tracing the heated debates between art and science, the societal anxiety over nascent computer technology, and the myths and philosophies surrounding digital computation, Taylor is able to identify the destabilizing forces that shape and eventually fragment the computer art movement.

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