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Topics in Metric Fixed Point Theory Cambridge University Press Metric Fixed Point Theory has proved a flourishing area of research for many mathematicians. This book aims to offer the mathematical community an accessible, self-contained account which can be used as an introduction to the subject and its development. It will be understandable to a wide audience, including non-specialists, and provide a source of examples, references and new approaches for those currently working in the subject. **Fixed Point Theory and Related Topics MDPI** Fixed point theory arose from the Banach contraction principle and has been studied for a long time. Its application mostly relies on the existence of solutions to mathematical problems that are formulated from economics and engineering. After the existence of the solutions is guaranteed, the numerical methodology will be established to obtain the approximated solution. Fixed points of function depend heavily on the considered spaces that are defined using the intuitive axioms. In particular, variant metrics spaces are proposed, like a partial metric space, b-metric space, fuzzy metric space and probabilistic metric space, etc. Different spaces will result in different types of fixed point theorems. In other words, there are a lot of different types of fixed point theorems in the literature. Therefore, this Special Issue welcomes survey articles. Articles that unify the different types of fixed point theorems are also very welcome. The topics of this Special Issue include the following: Fixed point theorems in metric space Fixed point theorems in fuzzy metric space Fixed point theorems in probabilistic metric space Fixed point theorems of set-valued functions in various spaces The existence of solutions in game theory The existence of solutions for equilibrium problems The existence of solutions of differential equations The existence of solutions of integral equations Numerical methods for obtaining the approximated fixed points **Topics in Fixed Point Theory Springer Science & Business Media** The purpose of this contributed

volume is to provide a primary resource for anyone interested in fixed point theory with a metric flavor. The book presents information for those wishing to find results that might apply to their own work and for those wishing to obtain a deeper understanding of the theory. The book should be of interest to a wide range of researchers in mathematical analysis as well as to those whose primary interest is the study of fixed point theory and the underlying spaces. The level of exposition is directed to a wide audience, including students and established researchers. Key topics covered include Banach contraction theorem, hyperconvex metric spaces, modular function spaces, fixed point theory in ordered sets, topological fixed point theory for set-valued maps, coincidence theorems, Lefschetz and Nielsen theories, systems of nonlinear inequalities, iterative methods for fixed point problems, and the Ekeland's variational principle. **Handbook of Topological Fixed Point Theory Springer Science & Business Media** This book will be especially useful for post-graduate students and researchers interested in the fixed point theory, particularly in topological methods in nonlinear analysis, differential equations and dynamical systems. The content is also likely to stimulate the interest of mathematical economists, population dynamics experts as well as theoretical physicists exploring the topological dynamics. **Topological Fixed Point Theory of Multivalued Mappings Springer Science & Business Media** This book is devoted to the topological fixed point theory of multivalued mappings including applications to differential inclusions and mathematical economy. It is the first monograph dealing with the fixed point theory of multivalued mappings in metric ANR spaces. Although the theoretical material was tendentiously selected with respect to applications, the text is self-contained. Current results are presented. **Handbook of Metric Fixed Point Theory Springer Science & Business Media** Metric fixed point theory encompasses the branch of fixed point theory which metric conditions on the underlying space and/or on the mappings play a fundamental role. In some sense the theory is a far-reaching outgrowth of Banach's contraction mapping principle. A natural extension of the study of contractions is the limiting case when the Lipschitz constant is allowed to equal one. Such mappings are called nonexpansive. Nonexpansive mappings arise in a variety of natural ways, for example in the study of holomorphic mappings and hyperconvex metric spaces. Because most of the spaces studied in analysis share many algebraic and topological properties as well as metric properties, there is no clear line separating metric fixed point theory from the topological or set-theoretic branch of the theory. Also, because of its metric underpinnings, metric fixed point theory has provided the motivation for the study of many geometric properties of Banach spaces. The contents of this Handbook reflect all of these facts. The purpose of the Handbook is to provide a primary resource for anyone interested in fixed point theory with a metric flavor. The goal is to provide information for those wishing to find results that might apply to their own work and for those wishing to obtain a deeper understanding of the theory. The book should be of interest to a wide range of researchers in mathematical analysis as well as to those whose primary interest is the study of fixed point theory and the underlying spaces. The level of exposition is directed to a wide audience, including students and established researchers. **Vertex Operator Algebras, Number Theory and Related Topics American Mathematical Soc.** This volume contains the proceedings of the International Conference on Vertex

Operator Algebras, Number Theory, and Related Topics, held from June 11–15, 2018, at California State University, Sacramento, California. The mathematics of vertex operator algebras, vector-valued modular forms and finite group theory continues to provide a rich and vibrant landscape in mathematics and physics. The resurgence of moonshine related to the Mathieu group and other groups, the increasing role of algebraic geometry and the development of irrational vertex operator algebras are just a few of the exciting and active areas at present. The proceedings center around active research on vertex operator algebras and vector-valued modular forms and offer original contributions to the areas of vertex algebras and number theory, surveys on some of the most important topics relevant to these fields, introductions to new fields related to these and open problems from some of the leaders in these areas. **Fixed Point Theory and Related Topics Topics in Singularity Theory V. I. Arnold's 60th Anniversary Collection American Mathematical Soc. Nonlinear Functional Analysis and Its Applications MDPI** This book consists of nine papers covering a number of basic ideas, concepts, and methods of nonlinear analysis, as well as some current research problems. Thus, the reader is introduced to the fascinating theory around Brouwer's fixed point theorem, to Granas' theory of topological transversality, and to some advanced techniques of critical point theory and fixed point theory. Other topics include discontinuous differential equations, new results of metric fixed point theory, robust tracker design problems for various classes of nonlinear systems, and periodic solutions in computer virus propagation models. **Handbook of Geometric Topology Elsevier** Geometric Topology is a foundational component of modern mathematics, involving the study of spacial properties and invariants of familiar objects such as manifolds and complexes. This volume, which is intended both as an introduction to the subject and as a wide ranging resouce for those already grounded in it, consists of 21 expository surveys written by leading experts and covering active areas of current research. They provide the reader with an up-to-date overview of this flourishing branch of mathematics. **Topics in the Theory of Computation Elsevier** This volume contains nine selected papers presented at the Borgholm conference. They were chosen on the basis of their immediate relevance to the most fundamental aspects of the theory of computation and the newest developments in this area. These papers, which have been extended and refereed, fall into eight categories: 1. Constructive Mathematics in Models of Computation and Programming; 2. Abstract Calculi and Denotational Semantics; 3. Theory of Machines, Computations and Languages; 4. Nondeterminism, Concurrency and Distributed Computing; 5. Abstract Algebras, Logics and Combinatorics in Computation Theory; 6. General Computability and Decidability; 7. Computational and Arithmetic Complexity; 8. Analysis of Algorithms and Feasible Computing. **Fixed-Point Algorithms for Inverse Problems in Science and Engineering Springer Science & Business Media** "Fixed-Point Algorithms for Inverse Problems in Science and Engineering" presents some of the most recent work from top-notch researchers studying projection and other first-order fixed-point algorithms in several areas of mathematics and the applied sciences. The material presented provides a survey of the state-of-the-art theory and practice in fixed-point algorithms, identifying emerging problems driven by applications, and discussing new approaches for solving these problems. This book incorporates diverse

perspectives from broad-ranging areas of research including, variational analysis, numerical linear algebra, biotechnology, materials science, computational solid-state physics, and chemistry. Topics presented include: Theory of Fixed-point algorithms: convex analysis, convex optimization, subdifferential calculus, nonsmooth analysis, proximal point methods, projection methods, resolvent and related fixed-point theoretic methods, and monotone operator theory. Numerical analysis of fixed-point algorithms: choice of step lengths, of weights, of blocks for block-iterative and parallel methods, and of relaxation parameters; regularization of ill-posed problems; numerical comparison of various methods. Areas of Applications: engineering (image and signal reconstruction and decompression problems), computer tomography and radiation treatment planning (convex feasibility problems), astronomy (adaptive optics), crystallography (molecular structure reconstruction), computational chemistry (molecular structure simulation) and other areas. Because of the variety of applications presented, this book can easily serve as a basis for new and innovated research and collaboration. **A Companion to Political Philosophy. Methods, Tools, Topics Routledge** This book offers a comprehensive overview of the key concepts and issues of contemporary political philosophy, providing an essential reference work for scholars and advanced students. It is structured in three parts, covering methodological issues; tools and argumentative strategies employed by political philosophy; and concepts and topics key to the discipline. Expert authors from around the world have written twenty chapters in a consistent and engaging style. Each chapter is thoroughly cross-referenced allowing students to appreciate how methodological issues relate to each other, and how methodology and argumentative tools affect the way substantial issues are addressed. The chapters are supplemented by further reading lists and selected bibliographies to aid further research. The companion will be required reading for masters and post-doctoral students, providing them with the appropriate tools for approaching political philosophy in a more thoughtful way, and showing how substantive topics are addressed within different perspectives and paradigms. The companion also provides upper-level undergraduates with a sophisticated introduction to the relevant problems and challenges political philosophy addresses. **Fixed Point Theory Springer Science & Business Media** "Granas-Dugundji's book is an encyclopedic survey of the classical fixed point theory of continuous mappings (the work of Poincaré, Brouwer, Lefschetz-Hopf, Leray-Schauder) and all its various modern extensions. This is certainly the most learned book ever likely to be published on this subject." -Felix Browder, Rutgers University "The theory of Fixed Points is one of the most powerful tools of modern mathematics. Not only is it used on a daily basis in pure and applied mathematics, but it also serves as a bridge between Analysis and Topology, and provides a very fruitful area of interaction between the two. This book contains a clear, detailed and well-organized presentation of the major results, together with an entertaining set of historical notes and an extensive bibliography describing further developments and applications." -Haïm Brézis, Université Pierre et Marie Curie "In this monograph, no effort has been spared, even to the smallest detail, be it mathematical, historical or bibliographical. In particular, the necessary background materials are generously provided for non-specialists. In fact, the book could even serve as an introduction to algebraic topology among others. It is certain that the book will be a standard work on

Fixed Point Theory for many years to come." -Isaac Namioka, University of Washington This monograph gives a carefully worked out account of the most basic principles and applications of the theory of fixed points. Until now, a treatment of many of the discussed topics has been unavailable in book form. The presentation is self-contained and is accessible to a broad spectrum of readers. The main text is complemented by numerous exercises, detailed comments, and a comprehensive bibliography. Andrzej Granas studied in Warsaw and then Moscow, where he earned his Ph.D. in 1958 under Lazar Lusternik. Since 1958, he has held various research and teaching posts in Poland, USA, Canada and elsewhere. During the Spring of 1970, he occupied a special chair at the Collège de France. In the early nineties, Dr. Granas founded and edited the journal *Topological Methods of Nonlinear Analysis*, and since 1992, he has served on the editorial board of the *Zentralblatt*. He is an Honorary Member of the Gdansk Scientific Society. The first part of this book is based on "Fixed Point Theory I" which was published by PWN, Warsaw in 1982. The second part follows the outline conceived by Andrzej Granas and the late James Dugundji. **The Study of Minimax Inequalities and Applications to Economics and Variational Inequalities American Mathematical Soc.** This book provides a unified treatment for the study of the existence of equilibria of abstract economics in topological vector spaces from the viewpoint of Ky Fan minimax inequalities, which strongly depend on his infinite dimensional version of the classical Knaster, Kuratowski and Mazurkiewicz Lemma (KKM Lemma) in 1961. Studied are applications of general system versions of minimax inequalities and generalized quasi-variational inequalities, and random abstract economics and its applications to the system of random quasi-variational inequalities are given. This work: presents new results and recent development of KKM theory; offers an overview of modern and up-to-date treatment of the KKM theory, including related articles covering theory and applications; uses an interdisciplinary approach with specific applications in mathematics and economics; and, includes a comprehensive bibliography. **Nonlinear Analysis and Optimization I A Conference in Celebration of Alex Ioffe's 70th and Simeon Reich's 60th Birthdays, June 18-24, 2008, Haifa, Israel American Mathematical Soc.** This volume is the first of two volumes representing leading themes of current research in nonlinear analysis and optimization. The articles are written by prominent researchers in these two areas and bring the readers, advanced graduate students and researchers alike, to the frontline of the vigorous research in these important fields of mathematics. This volume contains articles on nonlinear analysis. Topics covered include the convex feasibility problem, fixed point theory, mathematical biology, Mosco stability, nonexpansive mapping theory, nonlinear partial differential equations, optimal control, the proximal point algorithm and semigroup theory. The companion volume (*Contemporary Mathematics, Volume 514*) is devoted to optimization. This book is co-published with Bar-Ilan University (Ramat-Gan, Israel). Table of Contents: A. S. Ackleh, K. Deng, and Q. Huang -- Existence-uniqueness results and difference approximations for an amphibian juvenile-adult model; S. Aizicovici, N. S. Papageorgiou, and V. Staicu -- Three nontrivial solutions for p -Laplacian Neumann problems with a concave nonlinearity near the origin; V. Barbu -- Optimal stabilizable feedback controller for Navier-Stokes equations; H. H. Bauschke and X. Wang -- Firmly nonexpansive and Kirszbraum-Valentine extensions: A constructive

approach via monotone operator theory; R. E. Bruck -- On the random product of orthogonal projections in Hilbert space II; D. Butnariu, E. Resmerita, and S. Sabach -- A Mosco stability theorem for the generalized proximal mapping; A. Cegielski -- Generalized relaxations of nonexpansive operators and convex feasibility problems; Y. Censor and A. Segal -- Sparse string-averaging and split common fixed points; T. Dominguez Benavides and S. Phothi -- Genericity of the fixed point property for reflexive spaces under renormings; K. Goebel and B. Sims -- Mean Lipschitzian mappings; T. Ibaraki and W. Takahashi -- Generalized nonexpansive mappings and a proximal-type algorithm in Banach spaces; W. Kaczor, T. Kuczumow, and N. Michalska -- The common fixed point set of commuting nonexpansive mapping in Cartesian products of weakly compact convex sets; L. Leu?tean -- Nonexpansive iterations in uniformly convex W -hyperbolic spaces; G. Lopez, V. Martin-Marquez, and H.-K. Xu -- Halpern's iteration for nonexpansive mappings; J. W. Neuberger -- Lie generators for local semigroups; H.-K. Xu -- An alternative regularization method for nonexpansive mappings with applications. (CONM/513)

Nonlinear Functional Analysis and Its Applications American Mathematical Soc. Fixed Points and Economic Equilibria Condensing Multivalued Maps and Semilinear Differential Inclusions in Banach Spaces Walter de Gruyter

The theory of set-valued maps and of differential inclusion is developed in recent years both as a field of his own and as an approach to control theory. The book deals with the theory of semilinear differential inclusions in infinite dimensional spaces. In this setting, problems of interest to applications do not suppose neither convexity of the map or compactness of the multi-operators. These assumption implies the development of the theory of measure of noncompactness and the construction of a degree theory for condensing mapping. Of particular interest is the approach to the case when the linear part is a generator of a condensing, strongly continuous semigroup. In this context, the existence of solutions for the Cauchy and periodic problems are proved as well as the topological properties of the solution sets. Examples of applications to the control of transmission line and to hybrid systems are presented.

Topics in Fixed Point Theory Springer

The purpose of this contributed volume is to provide a primary resource for anyone interested in fixed point theory with a metric flavor. The book presents information for those wishing to find results that might apply to their own work and for those wishing to obtain a deeper understanding of the theory. The book should be of interest to a wide range of researchers in mathematical analysis as well as to those whose primary interest is the study of fixed point theory and the underlying spaces. The level of exposition is directed to a wide audience, including students and established researchers. Key topics covered include Banach contraction theorem, hyperconvex metric spaces, modular function spaces, fixed point theory in ordered sets, topological fixed point theory for set-valued maps, coincidence theorems, Lefschetz and Nielsen theories, systems of nonlinear inequalities, iterative methods for fixed point problems, and the Ekeland's variational principle.

Representations of Finite Dimensional Algebras and Related Topics in Lie Theory and Geometry American Mathematical Soc.

These proceedings are from the Tenth International Conference on Representations of Algebras and Related Topics (ICRA X) held at The Fields Institute. In addition to the traditional "instructional" workshop preceding the conference, there were also workshops on "Commutative Algebra,

Algebraic Geometry and Representation Theory", "Finite Dimensional Algebras, Algebraic Groups and Lie Theory", and "Quantum Groups and Hall Algebras". These workshops reflect the latest developments and the increasing interest in areas that are closely related to the representation theory of finite dimensional associative algebras. Although these workshops were organized separately, their topics are strongly interrelated. The workshop on Commutative Algebra, Algebraic Geometry and Representation Theory surveyed various recently established connections, such as those pertaining to the classification of vector bundles or Cohen-Macaulay modules over Noetherian rings, coherent sheaves on curves, or ideals in Weyl algebras. In addition, methods from algebraic geometry or commutative algebra relating to quiver representations and varieties of modules were presented. The workshop on Finite Dimensional Algebras, Algebraic Groups and Lie Theory surveyed developments in finite dimensional algebras and infinite dimensional Lie theory, especially as the two areas interact and may have future interactions. The workshop on Quantum Groups and Hall Algebras dealt with the different approaches of using the representation theory of quivers (and species) in order to construct quantum groups, working either over finite fields or over the complex numbers. In particular, these proceedings contain a quite detailed outline of the use of perverse sheaves in order to obtain canonical bases. The book is recommended for graduate students and researchers in algebra and geometry. **A Topological Introduction to Nonlinear Analysis Springer Science & Business Media** "The book is highly recommended as a text for an introductory course in nonlinear analysis and bifurcation theory... reading is fluid and very pleasant... style is informal but far from being imprecise." -review of the first edition. New to this edition: additional applications of the theory and techniques, as well as several new proofs. This book is ideal for self-study for mathematicians and students interested in geometric and algebraic topology, functional analysis, differential equations, and applied mathematics. **Topics in the Theory of Riemann Surfaces Lecture Notes in Mathematics** The book's main concern is automorphisms of Riemann surfaces, giving a foundational treatment from the point of view of Galois coverings, and treating the problem of the largest automorphism group for a Riemann surface of a given genus. In addition, the extent to which fixed points of automorphisms are generalized Weierstrass points is considered. The extremely useful inequality of Castelnuovo-Severi is also treated. While the methods are elementary, much of the material does not appear in the current texts on Riemann surfaces, algebraic curves. The book is accessible to a reader who has had an introductory course on the theory of Riemann surfaces or algebraic curves. **Register - University of California Topics in Quantum Field Theory Modern Methods in Fundamental Physics : Maynooth, Ireland, 24-26 May 1995 World Scientific** **Probabilistic Analysis and Related Topics Elsevier** Probabilistic Analysis and Related Topics, Volume 3 focuses on the continuity, integrability, and differentiability of random functions, including operator theory, measure theory, and functional and numerical analysis. The selection first offers information on the qualitative theory of stochastic systems and Langevin equations with multiplicative noise. Discussions focus on phase-space evolution via direct integration, phase-space evolution, linear and nonlinear systems, linearization, and generalizations. The text then ponders on the stability theory of stochastic difference systems and Markov

properties for random fields. Topics include Markov property of solutions of stochastic partial differential equations; Markov property for generalized Gaussian random fields; Markov properties for generalized random fields; stochastic stability of nonlinear systems; and linear stochastic systems. The publication examines the method of random contractors and its applications to random nonlinear equations, including integral contractors and applications to random equations; random contractors with random nonlinear majorant functions; and random contractors and application to random nonlinear operator equations. The selection is a valuable reference for mathematicians and researchers interested in the general theory of random functions. **Algebraic and Coalgebraic Methods in the Mathematics of Program Construction International Summer School and Workshop, Oxford, UK, April 10-14, 2000, Revised Lectures Springer** Program construction is about turning specifications of computer software into implementations. Recent research aimed at improving the process of program construction exploits insights from abstract algebraic tools such as lattice theory, fixpoint calculus, universal algebra, category theory, and allegory theory. This textbook-like tutorial presents, besides an introduction, eight coherently written chapters by leading authorities on ordered sets and complete lattices, algebras and coalgebras, Galois connections and fixed point calculus, calculating functional programs, algebra of program termination, exercises in coalgebraic specification, algebraic methods for optimization problems, and temporal algebra. **Topics In Quantum Field Theory: Modern Methods In Fundamental Physics World Scientific** This book constitutes the proceedings of a meeting which brought together contributors from the four European networks in the area of the theory of fundamental interactions. While each of these networks overlaps strongly with all the others, this coming together gives the proceedings a greater than usual breadth of subjects nevertheless. The wide range of topics in quantum field theory covered includes Hamiltonian and semiclassical methods, critical phenomena and various aspects of classical and quantum gravity including also a study in the detection of gravitational radiation. This, together with the leading item on the recent history of the subject, gives an overall perspective of the many new research directions in this area. **Mathematical Reviews Finite-Dimensional Variational Inequalities and Complementarity Problems Springer Science & Business Media** This is part one of a two-volume work presenting a comprehensive treatment of the finite-dimensional variational inequality and complementarity problem. It covers the basic theory of finite dimensional variational inequalities and complementarity problems. Coverage includes abundant exercises as well as an extensive bibliography. The book will be an enduring reference on the subject and provide the foundation for its sustained growth. **Mathematical Analysis and Applications Selected Topics John Wiley & Sons** An authoritative text that presents the current problems, theories, and applications of mathematical analysis research Mathematical Analysis and Applications: Selected Topics offers the theories, methods, and applications of a variety of targeted topics including: operator theory, approximation theory, fixed point theory, stability theory, minimization problems, many-body wave scattering problems, Basel problem, Corona problem, inequalities, generalized normed spaces, variations of functions and sequences, analytic generalizations of the Catalan, Fuss, and Fuss-Catalan Numbers,

asymptotically developable functions, convex functions, Gaussian processes, image analysis, and spectral analysis and spectral synthesis. The authors—a noted team of international researchers in the field—highlight the basic developments for each topic presented and explore the most recent advances made in their area of study. The text is presented in such a way that enables the reader to follow subsequent studies in a burgeoning field of research. This important text: Presents a wide-range of important topics having current research importance and interdisciplinary applications such as game theory, image processing, creation of materials with a desired refraction coefficient, etc. Contains chapters written by a group of esteemed researchers in mathematical analysis Includes problems and research questions in order to enhance understanding of the information provided Offers references that help readers advance to further study Written for researchers, graduate students, educators, and practitioners with an interest in mathematical analysis, **Mathematical Analysis and Applications: Selected Topics** includes the most recent research from a range of mathematical fields. **Research in Progress Prospect Theory For Risk and Ambiguity Cambridge University Press** Prospect Theory: For Risk and Ambiguity, provides a comprehensive and accessible textbook treatment of the way decisions are made both when we have the statistical probabilities associated with uncertain future events (risk) and when we lack them (ambiguity). The book presents models, primarily prospect theory, that are both tractable and psychologically realistic. A method of presentation is chosen that makes the empirical meaning of each theoretical model completely transparent. Prospect theory has many applications in a wide variety of disciplines. The material in the book has been carefully organized to allow readers to select pathways through the book relevant to their own interests. With numerous exercises and worked examples, the book is ideally suited to the needs of students taking courses in decision theory in economics, mathematics, finance, psychology, management science, health, computer science, Bayesian statistics, and engineering. **Current Topics in Quantum Field Theory Research Nova Publishers** Quantum field theory was invented to deal simultaneously with special relativity and quantum mechanics, the two greatest discoveries of early twentieth-century physics, but it has become increasingly important to many areas of physics including quantum hall physics, surface growth, string theory, D-branes and quantum gravity as well as condensed-matter and high-energy applications and particle-physics. This important book presents leading-edge research from throughout the world. **Topics on Riemann Surfaces and Fuchsian Groups Cambridge University Press** Introduction to Riemann surfaces for graduates and researchers, giving refreshingly new insights into the subject. **CMUC Smooth Ergodic Theory and Its Applications Proceedings of the AMS Summer Research Institute on Smooth Ergodic Theory and Its Applications, July 26-August 13, 1999, University of Washington, Seattle American Mathematical Soc.** During the past decade, there have been several major new developments in smooth ergodic theory, which have attracted substantial interest to the field from mathematicians as well as scientists using dynamics in their work. In spite of the impressive literature, it has been extremely difficult for a student - or even an established mathematician who is not an expert in the area - to acquire a working knowledge of smooth ergodic theory and to learn how to use its tools. Accordingly, the AMS Summer

Research Institute on Smooth Ergodic Theory and Its Applications (Seattle, WA) had a strong educational component, including ten mini-courses on various aspects of the topic that were presented by leading experts in the field. This volume presents the proceedings of that conference. Smooth ergodic theory studies the statistical properties of differentiable dynamical systems, whose origin traces back to the seminal works of Poincaré and later, many great mathematicians who made contributions to the development of the theory. The main topic of this volume, smooth ergodic theory, especially the theory of nonuniformly hyperbolic systems, provides the principle paradigm for the rigorous study of complicated or chaotic behavior in deterministic systems. This paradigm asserts that if a non-linear dynamical system exhibits sufficiently pronounced exponential behavior, then global properties of the system can be deduced from studying the linearized system. One can then obtain detailed information on topological properties (such as the growth of periodic orbits, topological entropy, and dimension of invariant sets including attractors), as well as statistical properties (such as the existence of invariant measures, asymptotic behavior of typical orbits, ergodicity, mixing, decay of correlations, and measure-theoretic entropy). Smooth ergodic theory also provides a foundation for numerous applications throughout mathematics (e.g., Riemannian geometry, number theory, Lie groups, and partial differential equations), as well as other sciences. This volume serves a two-fold purpose: first, it gives a useful gateway to smooth ergodic theory for students and nonspecialists, and second, it provides a state-of-the-art report on important current aspects of the subject. The book is divided into three parts: lecture notes consisting of three long expositions with proofs aimed to serve as a comprehensive and self-contained introduction to a particular area of smooth ergodic theory; thematic sections based on mini-courses or surveys held at the conference; and original contributions presented at the meeting or closely related to the topics that were discussed there.

Duality and Perturbation Methods in Critical Point Theory
Cambridge University Press Describes a approach to critical point theory and presents a whole new array of duality and perturbation methods.

Monetary Theory in Retrospect The Selected Essays of Filippo Cesarano
Routledge An objective and perceptive account of the literature of monetary theory, this volume, by a central banker who has studied monetary theory over the last quarter of a century, clearly shows how its inherent complexity is much enriched by the study of its history. In three parts Filippo Cesarano: focuses on the innovative ideas of distinguished economists who anticipated modern theories, elaborating on them along lines that suggest original research programmes examines the impact of expectations on the effectiveness of monetary policy, illustrating how different assumptions within the classical paradigm lead to diverse hypotheses and policy design investigates the role of monetary theory in shaping monetary institutions. Deserving of a wide readership among both academic economists and monetary policy practitioners, this collection of essays is key reading for students and researchers engaged with monetary theory and the history of economics and policy makers seeking to weigh up the assumptions underlying different theories in order to select the models best suited to the problems they face.