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## KEY=ISOLATED - RORY MANNING

**Milnor Fiber Boundary of a Non-isolated Surface Singularity** *Springer Science & Business Media* **In the study of algebraic/analytic varieties a key aspect is the description of the invariants of their singularities. This book targets the challenging non-isolated case. Let f be a complex analytic hypersurface germ in three variables whose zero set has a 1-dimensional singular locus. We develop an explicit procedure and algorithm that describe the boundary M of the Milnor fiber of f as an oriented plumbed 3-manifold. This method also provides the characteristic polynomial of the algebraic monodromy. We then determine the multiplicity system of the open book decomposition of M cut out by the argument of g for any complex analytic germ g such that the pair (f,g) is an ICIS. Moreover, the horizontal and vertical monodromies of the transversal type singularities associated with the singular locus of f and of the ICIS (f,g) are also described. The theory is supported by a substantial amount of examples, including homogeneous and composed singularities and suspensions. The properties peculiar to M are also emphasized. Singularities and Their Interaction**

with Geometry and Low Dimensional Topology In Honor of András Némethi *Springer Nature* **The book is a collection of surveys and original research articles concentrating on new perspectives and research directions at the crossroads of algebraic geometry, topology, and singularity theory. The papers, written by leading researchers working on various topics of the above fields, are the outcome of the "Némethi60: Geometry and Topology of Singularities" conference held at the Alfréd Rényi Institute of Mathematics in Budapest, from May 27 to 31, 2019. Both the conference and this resulting volume are in honor of Professor András Némethi, on the occasion of his 60th birthday, whose work plays a decisive and influential role in the interactions between the above fields. The book should serve as a valuable resource for graduate students and researchers to deepen the new perspectives, methods, and connections between geometry and topology regarding singularities. Singularity Theory** *World Scientific* **The Singularity School and Conference took place in Luminy, Marseille, from January 24th to February 25th 2005. More than 180 mathematicians from over 30 countries converged to discuss recent developments in singularity theory. The volume contains the elementary and advanced courses conducted by singularities specialists during the conference, general lectures on singularity theory, and lectures on applications of the theory to various domains. The subjects range from geometry and topology of singularities, through real and complex singularities, to applications of singularities. Singularity Theory Dedicated to Jean-Paul Brasselet on His 60th Birthday A Sufficient Criterion for a Cone to be Area-minimizing** *American Mathematical Soc.* **Presents a systematic algorithm for proving that certain cones are area-minimizing. The algorithm the author describes consists of examining a first order ordinary equation based on the curvature and dimension of the cone and ensuring that certain line segments normal to the curve do not intersect. On the Topology of Isolated Singularities in Analytic Spaces** *Springer Science & Business Media* **This book has been awarded the Ferran Sunyer i Balaguer 2005 prize. The aim of this book is to give an overview of selected topics on the topology of real and complex isolated singularities, with emphasis on its relations to other branches of geometry and topology. The first chapters are mostly devoted to complex singularities and a myriad of results spread in a vast literature, which are presented here in a unified way, accessible to non-specialists. Among the topics are the fibration theorems of Milnor; the relation with 3-dimensional Lie groups; exotic spheres; spin structures and 3-manifold invariants; the geometry of quadrics and Arnold's theorem which states that the complex projective plane modulo conjugation is the 4-sphere. The second part of the book studies pioneer work about real analytic singularities which arise from the topological and geometric study of holomorphic vector fields and foliations. In the low dimensional case these turn out to be related to fibred links in the 3-sphere defined by meromorphic functions. This provides new methods for constructing manifolds equipped with a rich geometry. The book is largely self-contained and serves a wide audience of graduate students, mathematicians**

and researchers interested in geometry and topology. Dynamical Systems VIII Singularity Theory II. Applications *Springer Science & Business Media* This book is devoted to applications of singularity theory in mathematics and physics, covering a broad spectrum of topics and problems. "The book contains a huge amount of information from all the branches of Singularity Theory, presented in a very attractive way, with lots of inspiring pictures." --ZENTRALBLATT MATH Geometric Measure Theory and the Calculus of Variations *American Mathematical Soc.* These twenty-six papers survey a cross section of current work in modern geometric measure theory and its applications in the calculus of variations. Presently the field consists of a jumble of new ideas, techniques and intuitive hunches; an exchange of information has been hindered, however, by the characteristic length and complexity of formal research papers in higher-dimensional geometric analysis. This volume provides an easier access to the material, including introductions and summaries of many of the authors' much longer works and a section containing 80 open problems in the field. The papers are aimed at analysts and geometers who may use geometric measure-theoretic techniques, and they require a mathematical sophistication at the level of a second year graduate student. The papers included were presented at the 1984 AMS Summer Research Institute held at Humboldt State University. A major theme of this institute was the introduction and application of multiple-valued function techniques as a basic new tool in geometric analysis, highlighted by Almgren's fundamental paper Deformations and multiple-valued functions. Major new results discussed at the conference included the following: Allard's integrality and regularity theorems for surfaces stationary with respect to general elliptic integrands; Scheffer's first example of a singular solution to the Navier-Stokes equations for a fluid flow with opposing force; and Hutchinson's new definition of the second fundamental form of a general varifold. Moduli Spaces of Abelian Surfaces Compactification, Degenerations, and Theta Functions *Walter de Gruyter* The aim of the Expositions is to present new and important developments in pure and applied mathematics. Well established in the community over more than two decades, the series offers a large library of mathematical works, including several important classics. The volumes supply thorough and detailed expositions of the methods and ideas essential to the topics in question. In addition, they convey their relationships to other parts of mathematics. The series is addressed to advanced readers interested in a thorough study of the subject. Editorial Board Lev Birbrair, Universidade Federal do Ceará, Fortaleza, Brasil Walter D. Neumann, Columbia University, New York, USA Markus J. Pflaum, University of Colorado, Boulder, USA Dierk Schleicher, Jacobs University, Bremen, Germany Katrin Wendland, University of Freiburg, Germany Honorary Editor Victor P. Maslov, Russian Academy of Sciences, Moscow, Russia Titles in planning include Yuri A. Bahturin, Identical Relations in Lie Algebras (2019) Yakov G. Berkovich, Lev G. Kazarin, and Emmanuel M. Zhmud', Characters of Finite Groups, Volume 2 (2019) Jorge Herbert Soares de Lira, Variational Problems for

**Hypersurfaces in Riemannian Manifolds (2019) Volker Mayer, Mariusz Urbański, and Anna Zdunik, Random and Conformal Dynamical Systems (2021) Ioannis Diamantis, Bostjan Gabrovsek, Sofia Lambropoulou, and Maciej Mroczkowski, Knot Theory of Lens Spaces (2021) Singularity Theory** *Cambridge University Press* **Professor Arnold is a prolific and versatile mathematician who has done striking work in differential equations and geometrical aspects of analysis. In this volume are collected seven of his survey articles from Russian Mathematical Surveys on singularity theory, the area to which he has made most contribution. These surveys contain Arnold's own analysis and synthesis of a decade's work. All those interested in singularity theory will find this an invaluable compilation. Professor C. T. C. Wall has written an introduction outlining the significance and content of the articles. Handbook of Geometry and Topology of Singularities III** *Springer Nature* **This is the third volume of the Handbook of Geometry and Topology of Singularities, a series which aims to provide an accessible account of the state of the art of the subject, its frontiers, and its interactions with other areas of research. This volume consists of ten chapters which provide an in-depth and reader-friendly survey of various important aspects of singularity theory. Some of these complement topics previously explored in volumes I and II, such as, for instance, Zariskis equisingularity, the interplay between isolated complex surface singularities and 3-manifold theory, stratified Morse theory, constructible sheaves, the topology of the non-critical levels of holomorphic functions, and intersection cohomology. Other chapters bring in new subjects, such as the ThomMather theory for maps, characteristic classes for singular varieties, mixed Hodge structures, residues in complex analytic varieties, nearby and vanishing cycles, and more. Singularities are ubiquitous in mathematics and science in general. Singularity theory interacts energetically with the rest of mathematics, acting as a crucible where different types of mathematical problems interact, surprising connections are born and simple questions lead to ideas which resonate in other parts of the subject, and in other subjects. Authored by world experts, the various contributions deal with both classical material and modern developments, covering a wide range of topics which are linked to each other in fundamental ways. The book is addressed to graduate students and newcomers to the theory, as well as to specialists who can use it as a guidebook. Geometric Analysis Partial Differential Equations and Surfaces : UIMP-RSME Santaló Summer School Geometric Analysis, June 28-July 2, 2010, University of Granada, Granada, Spain** *American Mathematical Soc.* **This volume contains research and expository articles from the courses and talks given at the RSME Lluis A. Santalo Summer School, ``Geometric Analysis'', held June 28-July 2, 2010, in Granada, Spain. The goal of the Summer School was to present some of the many advances currently taking place in the interaction between partial differential equations and differential geometry, with special emphasis on the theory of minimal surfaces. This volume includes expository articles about the current state of specific problems involving curvature and partial**

differential equations, with interactions to neighboring fields such as probability. An introductory, mostly self-contained course on constant mean curvature surfaces in Lie groups equipped with a left invariant metric is provided. The volume will be of interest to researchers, post-docs, and advanced PhD students in the interface between partial differential equations and differential geometry. Real And Complex Singularities *CRC Press* This text offers a selection of papers on singularity theory presented at the Sixth Workshop on Real and Complex Singularities held at ICMC-USP, Brazil. It should help students and specialists to understand results that illustrate the connections between singularity theory and related fields. The authors discuss irreducible plane curve singularities, openness and multitransversality, the distribution Afs and the real asymptotic spectrum, deformations of boundary singularities and non-crystallographic coxeter groups, transversal Whitney topology and singularities of Haefliger foliations, the topology of hypersurface singularities, polar multiplicities and equisingularity of map germs from C3 to C4, and topological invariants of stable maps from a surface to the plane from a global viewpoint. The American Mathematical Monthly The Official Journal of the Mathematical Association of America Chaotic Dynamics and Fractals *Academic Press* Chaotic Dynamics and Fractals covers the proceedings of the 1985 Conference on Chaotic Dynamics, held at the Georgia Institute of Technology. This conference deals with the research area of chaos, dynamical systems, and fractal geometry. This text is organized into three parts encompassing 16 chapters. The first part describes the nature of chaos and fractals, the geometric tool for some strange attractors, and other complicated sets of data associated with chaotic systems. This part also considers the Henon-Hiles Hamiltonian with complex time, a Henon family of maps from C2 into itself, and the idea of turbulent maps in the course of presenting results on iteration of continuous maps from the unit interval to itself. The second part discusses complex analytic dynamics and associated fractal geometry, specifically the bursts into chaos, algorithms for obtaining geometrical and combinatorial information, and the parameter space for iterated cubic polynomials. This part also examines the differentiation of Julia sets with respects to a parameter in the associated rational map, permitting the formulation of Taylor series expansion for the sets. The third part highlights the applications of chaotic dynamics and fractals. This book will prove useful to mathematicians, physicists, and other scientists working in, or introducing themselves to, the field. Resolution of Surface Singularities Three Lectures *Springer* Introduction to Lipschitz Geometry of Singularities Lecture Notes of the International School on Singularity Theory and Lipschitz Geometry, Cuernavaca, June 2018 *Springer Nature* This book presents a broad overview of the important recent progress which led to the emergence of new ideas in Lipschitz geometry and singularities, and started to build bridges to several major areas of singularity theory. Providing all the necessary background in a series of introductory lectures, it also contains Pham and Teissier's previously unpublished pioneering work on the Lipschitz classification of

germs of plane complex algebraic curves. While a real or complex algebraic variety is topologically locally conical, it is in general not metrically conical; there are parts of its link with non-trivial topology which shrink faster than linearly when approaching the special point. The essence of the Lipschitz geometry of singularities is captured by the problem of building classifications of the germs up to local bi-Lipschitz homeomorphism. The Lipschitz geometry of a singular space germ is then its equivalence class in this category. The book is aimed at graduate students and researchers from other fields of geometry who are interested in studying the multiple open questions offered by this new subject. **Encyclopaedia of Mathematics Volume 6: Subject Index — Author Index** *Springer Science & Business Media* **This ENCYCLOPAEDIA OF MATHEMATICS aims to be a reference work for all parts of mathe matics. It is a translation with updates and editorial comments of the Soviet Mathematical Encyclopaedia published by 'Soviet Encyclopaedia Publishing House' in five volumes in 1977-1985. The annotated translation consists of ten volumes including a special index volume. There are three kinds of articles in this ENCYCLOPAEDIA. First of all there are survey-type articles dealing with the various main directions in mathematics (where a rather fine subdivi sion has been used). The main requirement for these articles has been that they should give a reasonably complete up-to-date account of the current state of affairs in these areas and that they should be maximally accessible. On the whole, these articles should be understandable to mathematics students in their first specialization years, to graduates from other mathematical areas and, depending on the specific subject, to specialists in other domains of science, en gineers and teachers of mathematics. These articles treat their material at a fairly general level and aim to give an idea of the kind of problems, techniques and concepts involved in the area in question. They also contain background and motivation rather than precise statements of precise theorems with detailed definitions and technical details on how to carry out proofs and constructions. The second kind of article, of medium length, contains more detailed concrete problems, results and techniques. Fifth International Congress of Chinese Mathematicians** *American Mathematical Soc.* **This two-part volume represents the proceedings of the Fifth International Congress of Chinese Mathematicians, held at Tsinghua University, Beijing, in December 2010. The Congress brought together eminent Chinese and overseas mathematicians to discuss the latest developments in pure and applied mathematics. Included are 60 papers based on lectures given at the conference. Real and Complex Singularities XI International Workshop on Real and Complex Singularities, July 26-30, 2010, Instituto de Ciências Matemáticas E de Computação, Universidade de São Paulo, São Carlos, SP Brazil** *American Mathematical Soc.* **"This volume is a collection of papers presented at the 11th International Workshop on Real and Complex Singularities, held July 26-30, 2010, in Säao Carlos, Brazil, in honor of David Mond's 60th birthday. This volume reflects the high level of the conference discussing the most recent results and applications of singularity**

theory. Articles in the first part cover pure singularity theory: invariants, classification theory, and Milnor fibres. Articles in the second part cover singularities in topology and differential geometry, as well as algebraic geometry and bifurcation theory: Artin-Greenberg function of a plane curve singularity, metric theory of singularities, symplectic singularities, cobordisms of fold maps, Goursat distributions, sections of analytic varieties, Vassiliev invariants, projections of hypersurfaces, and linearity of the Jacobian ideal."--P. [4] of cover. Handbook of Global Analysis *Elsevier* This is a comprehensive exposition of topics covered by the American Mathematical Society's classification "Global Analysis , dealing with modern developments in calculus expressed using abstract terminology. It will be invaluable for graduate students and researchers embarking on advanced studies in mathematics and mathematical physics. This book provides a comprehensive coverage of modern global analysis and geometrical mathematical physics, dealing with topics such as; structures on manifolds, pseudogroups, Lie groupoids, and global Finsler geometry; the topology of manifolds and differentiable mappings; differential equations (including ODEs, differential systems and distributions, and spectral theory); variational theory on manifolds, with applications to physics; function spaces on manifolds; jets, natural bundles and generalizations; and non-commutative geometry. - Comprehensive coverage of modern global analysis and geometrical mathematical physics - Written by world-experts in the field - Up-to-date contents Invariants of Homology 3-Spheres *Springer Science & Business Media* The book gives a systematic exposition of the diverse ideas and methods in the area, from algebraic topology of manifolds to invariants arising from quantum field theories. The main topics covered include: constructions and classification of homology 3-spheres, Rokhlin invariant, Casson invariant and its extensions, and Floer homology and gauge-theoretical invariants of homology cobordism. Many of the topics covered in the book appear in monograph form for the first time. The book gives a rather broad overview of ideas and methods and provides a comprehensive bibliography. The text will be a valuable source for both the graduate student and researcher in mathematics and theoretical physics. Handbook of Geometry and Topology of Singularities II *Springer Nature* A Course in Differential Geometry *Springer Science & Business Media* This English edition could serve as a text for a first year graduate course on differential geometry, as did for a long time the Chicago Notes of Chern mentioned in the Preface to the German Edition. Suitable references for ordin ary differential equations are Hurewicz, W. Lectures on ordinary differential equations. MIT Press, Cambridge, Mass., 1958, and for the topology of surfaces: Massey, Algebraic Topology, Springer-Verlag, New York, 1977. Upon David Hoffman fell the difficult task of transforming the tightly constructed German text into one which would mesh well with the more relaxed format of the Graduate Texts in Mathematics series. There are some e1aborations and several new figures have been added. I trust that the merits of the German edition have survived whereas at the same time the efforts of

David helped to elucidate the general conception of the Course where we tried to put Geometry before Formalism without giving up mathematical rigour. 1 wish to thank David for his work and his enthusiasm during the whole period of our collaboration. At the same time I would like to commend the editors of Springer-Verlag for their patience and good advice. Bonn Wilhelm Klingenberg June,1977 vii From the Preface to the German Edition This book has its origins in a one-semester course in differential geometry which 1 have given many times at Gottingen, Mainz, and Bonn. **Global Affine Differential Geometry of Hypersurfaces** *Walter de Gruyter GmbH & Co KG* This book draws a colorful and widespread picture of global affine hypersurface theory up to the most recent state. Moreover, the recent development revealed that affine differential geometry – as differential geometry in general – has an exciting intersection area with other fields of interest, like partial differential equations, global analysis, convex geometry and Riemann surfaces. The second edition of this monograph leads the reader from introductory concepts to recent research. Since the publication of the first edition in 1993 there appeared important new contributions, like the solutions of two different affine Bernstein conjectures, due to Chern and Calabi, respectively. Moreover, a large subclass of hyperbolic affine spheres were classified in recent years, namely the locally strongly convex Blaschke hypersurfaces that have parallel cubic form with respect to the Levi-Civita connection of the Blaschke metric. The authors of this book present such results and new methods of proof. **The Geometry of Biological Time** *Springer Science & Business Media* As 1 review these pages, the last of them written in Summer 1978, some retrospec tive thoughts come to mind which put the whole business into better perspective for me and might aid the prospective reader in choosing how to approach this volume. The most conspicuous thought in my mind at present is the diversity of wholly independent explorations that came upon phase singularities, in one guise or another, during the past decade. My efforts to gather the published literature during the last phases of actually writing a whole book about them were almost equally divided between libraries of Biology, Chemistry, Engineering, Mathematics, Medicine, and Physics. A lot of what 1 call "gathering " was done somewhat in anticipation in the form of cönjecture, query, and prediction based on analogy between developments in different fields. The consequence throughout 1979 was that our long-suffering publisher re peatedly had to replace such material by citation of unexpected flurries of papers giving substantive demonstration. 1 trust that the authors of these many excellent reports, and especially of those I only found too late, will forgive the brevity of allusion I felt compelled to observe in these substitutions. A residue of loose ends is largely collected in the index under "QUERIES. " It is c1ear to me already that the materials I began to gather several years ago represented only the first flickering of what turns out to be a substantial conflagration. **Handbook of Geometry and Topology of Singularities I** *Springer Nature* This volume consists of ten articles which provide an in-depth and reader-friendly survey of some of the foundational

aspects of singularity theory. Authored by world experts, the various contributions deal with both classical material and modern developments, covering a wide range of topics which are linked to each other in fundamental ways. Singularities are ubiquitous in mathematics and science in general. Singularity theory interacts energetically with the rest of mathematics, acting as a crucible where different types of mathematical problems interact, surprising connections are born and simple questions lead to ideas which resonate in other parts of the subject. This is the first volume in a series which aims to provide an accessible account of the state-of-the-art of the subject, its frontiers, and its interactions with other areas of research. The book is addressed to graduate students and newcomers to the theory, as well as to specialists who can use it as a guidebook. Hilbert Modular Surfaces *Springer Science & Business Media* Over the last 15 years important results have been achieved in the field of Hilbert Modular Varieties. Though the main emphasis of this book is on the geometry of Hilbert modular surfaces, both geometric and arithmetic aspects are treated. An abundance of examples - in fact a whole chapter - completes this competent presentation of the subject. This Ergebnisbericht will soon become an indispensible tool for graduate students and researchers in this field. Mathematics of Surfaces XI 11th IMA International Conference, Loughborough, UK, September 5-7, 2005, Proceedings *Springer* This book constitutes the refereed proceedings of the 11th IMA International Conference on the Mathematics of Surfaces, held in Loughborough, UK in September 2005. The 28 revised full papers presented were carefully reviewed and selected from numerous submissions. Among the topics addressed are Voronoi diagrams, linear systems, curvatures on meshes, approximate parameterization, condition numbers, pythagorean hodographs, artifacts in B-spline surfaces, Bézier surfaces of minimal energy, line subdivision, subdivision surfaces, level sets and symmetry, the topology of algebraic surfaces, embedding graphs in manifolds, recovery of 3D shape from shading, finding optimal feedrates for machining, and improving of range data. Mathematical Reviews Waves And Stability In Continuous Media - Proceedings Of The Vii Conference *World Scientific* This volume presents an up-to-date overview of some of the most important topics in waves and stability in continuous media. The topics are: Discontinuity and Shock Waves; Linear and Non-Linear Stability in Fluid Dynamics; Kinetic Theories and Comparison with Continuum Models; Propagation and Non-Equilibrium Thermodynamics; and Numerical Applications. Introduction to Singularities *Springer* This book is an introduction to singularities for graduate students and researchers. It is said that algebraic geometry originated in the seventeenth century with the famous work Discours de la méthode pour bien conduire sa raison, et chercher la vérité dans les sciences by Descartes. In that book he introduced coordinates to the study of geometry. After its publication, research on algebraic varieties developed steadily. Many beautiful results emerged in mathematicians' works. Most of them were about non-singular varieties. Singularities were considered "bad" objects that interfered with knowledge of

the structure of an algebraic variety. In the past three decades, however, it has become clear that singularities are necessary for us to have a good description of the framework of varieties. For example, it is impossible to formulate minimal model theory for higher-dimensional cases without singularities. Another example is that the moduli spaces of varieties have natural compactification, the boundaries of which correspond to singular varieties. A remarkable fact is that the study of singularities is developing and people are beginning to see that singularities are interesting and can be handled by human beings. This book is a handy introduction to singularities for anyone interested in singularities. The focus is on an isolated singularity in an algebraic variety. After preparation of varieties, sheaves, and homological algebra, some known results about 2-dim ensional isolated singularities are introduced. Then a classification of higher-dimensional isolated singularities is shown according to plurigenera and the behavior of singularities under a deformation is studied. Normal Forms and Homoclinic Chaos *American Mathematical Soc.* This volume presents new research on normal forms, symmetry, homoclinic cycles, and chaos, from the Workshop on Normal Forms and Homoclinic Chaos held during The Fields Institute Program Year on Dynamical Systems and Bifurcation Theory in November 1992, in Waterloo, Canada. The workshop bridged the local and global analysis of dynamical systems with emphasis on normal forms and the recently discovered homoclinic cycles which may arise in normal forms. Specific topics covered in this volume include normal forms for dissipative, conservative, and reversible vector fields, and for symplectic maps; the effects of symmetry on normal forms; the persistence of homoclinic cycles; symmetry-breaking, both spontaneous and induced; mode interactions; resonances; intermittency; numerical computation of orbits in phase space; applications to flow-induced vibrations and to mechanical and structural systems; general methods for calculation of normal forms; and chaotic dynamics arising from normal forms. Of the 32 presentations given at this workshop, 14 of them are represented by papers in this volume. Local Features in Natural Images via Singularity Theory *Springer* This monograph considers a basic problem in the computer analysis of natural images, which are images of scenes involving multiple objects that are obtained by a camera lens or a viewer's eye. The goal is to detect geometric features of objects in the image and to separate regions of the objects with distinct visual properties. When the scene is illuminated by a single principal light source, we further include the visual clues resulting from the interaction of the geometric features of objects, the shade/shadow regions on the objects, and the "apparent contours". We do so by a mathematical analysis using a repertoire of methods in singularity theory. This is applied for generic light directions of both the "stable configurations" for these interactions, whose features remain unchanged under small viewer movement, and the generic changes which occur under changes of view directions. These may then be used to differentiate between objects and determine their shapes and positions. Singularities: Geometric and

**topological aspects** *American Mathematical Soc.* **This is the second part of the Proceedings of the meeting 'School and Workshop on the Geometry and Topology of Singularities', held in Cuernavaca, Mexico, from January 8th to 26th of 2007, in celebration of the 60th Birthday of Le Dung Trang. This volume contains fourteen cutting-edge research articles on geometric and topological aspects of singularities of spaces and maps. By reading this volume, and the accompanying volume on algebraic and analytic aspects of singularities, the reader should gain an appreciation for the depth, breadth, and beauty of the subject, and also find a rich source of questions and problems for future study. Bulletin of the American Mathematical Society Singularity Theory Proceedings of the European Singularities Conference, August 1996, Liverpool and Dedicated to C.T.C. Wall on the Occasion of His 60th Birthday** *Cambridge University Press* **An up-to-date survey of research in singularity theory. Theory of Singularities and Its Applications** *American Mathematical Soc.* **Covers such topics as construction of new knot invariants, stable cohomology of complementary spaces to diffusion diagrams, topological properties of spaces of Legendre maps, application of Weierstrass bifurcation points in projective curve flattenings, classification of singularities of projective surfaces with boundary, and control theory. Introduction to Mathematical Physics** *John Wiley & Sons* **A comprehensive survey of all the mathematical methods that should be available to graduate students in physics. In addition to the usual topics of analysis, such as infinite series, functions of a complex variable and some differential equations as well as linear vector spaces, this book includes a more extensive discussion of group theory than can be found in other current textbooks. The main feature of this textbook is its extensive treatment of geometrical methods as applied to physics. With its introduction of differentiable manifolds and a discussion of vectors and forms on such manifolds as part of a first-year graduate course in mathematical methods, the text allows students to grasp at an early stage the contemporary literature on dynamical systems, solitons and related topological solutions to field equations, gauge theories, gravitational theory, and even string theory. Free solutions manual available for lecturers at www.wiley-vch.de/supplements/. Quantum Fluids and Solids** *Springer Science & Business Media* **The second International Symposium on Quantum Fluids and Solids came to pass during 23-27 Jan. 1977 as the fourth and con cluding part of the seventeenth consecutive running of the Sanibel Symposium Series. With approximately 120 participants from eleven countries (including, for the first time, the USSR), we found it easy to obtain a selection of papers which was fairly comprehen sive. Indeed, our problem was an embarrassment of riches; in spite of our solemn vows not to crowd the schedule, we ended up with an intense program! By far, the majority of the papers pre sented are represented in this volume. We are indebted to many persons and organizations for their contributions to the Symposia. First, we thank Prof. Per-Olov Lowdin, Director of the Quantum Theory Project and originator of the Sanibel Symposia. Without**