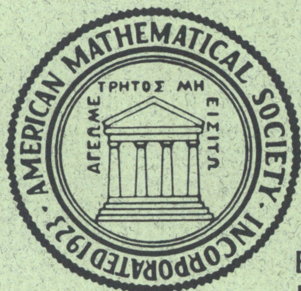


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October 1983

Volume 41, Number 164, Pages 309–794

**Published by the American Mathematical Society  
Providence, Rhode Island USA**

ISSN 0025-5718



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MATHEMATICS OF COMPUTATION is published quarterly by the American Mathematical Society, 201 Charles Street, Providence, RI 02904. Second-class postage is paid at Providence, Rhode Island, and additional mailing offices. Postmaster: Send address changes to Mathematics of Computation, American Mathematical Society, P.O. Box 6248, Providence, RI 02940.



As of January 1, 1984  
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## Singularities

Peter Orlik, Editor

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MATHEMATICS, VOLUME 40

This book presents the proceedings of the Summer Institute on Singularities held at Humboldt State University, Arcata, California on July 20–August 7, 1981, and was prepared with partial support from the National Science Foundation.

The Theory of Singularities is a relatively new area of research which has grown rapidly and developed into a major field of activity. It employs the tools of Algebraic Geometry, Algebraic Topology, Differential Geometry and Real and Complex Analysis. The basic aim of these volumes is to give an exposition of the area, describe recent progress and list open problems. Some of the major topics are resolution and deformation of singularities in the algebraic and analytic categories; smoothing theory and mixed Hodge structures; equisingularity, the study of polar varieties and Whitney stratifications; Milnor fibration, monodromy and intersection pairing; analytic results, including the Gauss-Manin connection and relations with differential systems; metric properties and curvature; connections with knot theory and link theory, equivariant results and automorphic forms; unfoldings, adjacency, classification of singularities and modality; stability of singularities; Newton diagrams; Morse theory and intersection homology; and applications to physics and other sciences.

The expository papers introduce the reader to the frontiers of broad areas of research activity in singularities. The research articles solve specific problems and pose related open questions. In addition, two articles are devoted entirely to open problems in the area. Background necessary for understanding the papers is two years of graduate-level mathematics with advanced courses in Algebraic Topology, Algebraic Geometry, and Analysis.

The book's most significant contribution is its breadth. It encompasses the entire spectrum of research in singularities at this time. The field is very active and this is the first attempt at such comprehensive coverage.

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### Operator Algebras and Applications

Richard V. Kadison, Editor

These volumes present a state-of-the-art account of the theory of operator algebras and its applications. They stem from a conference that represented the first meeting dealing with the full range of the subject in over thirteen years. The major part of the volumes is expository in nature—the conference was arranged to survey advances and developments in recent years. Many articles have been written to give expository descriptions of these advances. There are groups of related articles (for example, in the theory of  $C^*$ -dynamical systems, the theory of unbounded derivations, applications to quantum physics, and the cohomology theory of operator algebras). There are major articles by many of the leading contributors to the field.

The Symposium was held at Queen's University, Kingston, Ontario, July 14–August 2, 1980. It was partially supported by a grant from the National Science Foundation.

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Ram Gnanadesikan, Editor

This book is an outcome of the 1982 AMS Short Course given at Toronto. Statistical data analysis has been receiving a great deal of attention recently as evidenced by the fact that subsets of the authors of the present volume have given workshops or short courses on this topic at various meetings in the last two years, including those of the Mathematical Association of America and ICME-IV. The interest may be due to many things—practical importance of the topic, challenging research problems in a relatively young field, need for ideas and material for teaching courses on the subject.

Clearly neither the short course nor this book can provide enough details on all of the above facets of interest. However, the different chapters do address these aspects, although with varying degrees of emphasis. One hope of all the authors in publishing this book is that others will use this material as a starting point and, with the help of some of the references, be able to develop workshops, short courses and other educational forums on their own.

The authors are all employed by Bell Laboratories which provided support for the efforts of all of them.

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