

Mathematics of Computation

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WALTER GAUTSCHI, Department of Computer Sciences, Purdue University, West Lafayette, IN 47907; *E-mail:* wxg@cs.purdue.edu

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ROSWITHA MÄRZ, Institut für Mathematik, Humboldt-Universität zu Berlin, D-10099 Berlin, Germany; *E-mail:* maerz@mathematik.hu-berlin.de

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CHI-WANG SHU, Applied Mathematics Division, Brown University, Providence, RI 02912-0001; *E-mail:* shu@cfm.brown.edu

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HANS J. STETTER, Institut für Numerische Mathematik, Technische Universität Wien, Wiedner Hauptstrasse 6-10, A-1040, Wien, Austria; *E-mail*: stetter@uranus.tuwien.ac.at

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JOSEPH D. WARD, Department of Mathematics, Texas A & M University, College Station, TX 77843-3368; *E-mail*: jward@math.tamu.edu

HUGH C. WILLIAMS, Department of Computer Science, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2; *E-mail*: Hugh_Williams@csmail.cs.umanitoba.ca

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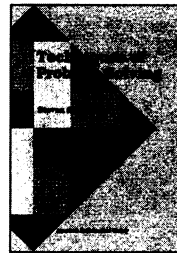


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Robin Hartshorne, *University of California, Berkeley*

This book presents Euclidean and non-Euclidean geometries and their relation to modern algebra. *Companion to Euclid* starts by closely examining the first four books of Euclid's *Elements*, which students read concurrently. Next, Hilbert's axioms are introduced in the text to give a rigorous basis to the logical structure of Euclid's geometry. Then, a broader perspective to the *Elements* considers various mathematical questions and subsequent developments that arise naturally from Euclid's geometry.

Berkeley Mathematics Lecture Notes, Volume 9; 1997; 362 pages; Softcover; ISBN 0-8218-0797-8; List \$33; All AMS members \$26; Order code BMLN/9MC

Euler Products and Eisenstein Series

Goro Shimura, *Princeton University, NJ*

This volume has three chief objectives: 1) the determination of local Euler factors on classical groups in an explicit rational form; 2) Euler products and Eisenstein series on a unitary group of an arbitrary signature; and 3) a class number formula for a totally definite hermitian form. Though these are new results that have never before been published, Shimura starts with a quite general setting. He includes many topics of an expository nature so that the book can be viewed as an introduction to the theory of automorphic forms of several variables, Hecke theory in particular. Eventually, the exposition is specialized to unitary groups, but they are treated as a model case so that the reader can easily formulate the corresponding facts for other groups.

CBMS Regional Conference Series in Mathematics, Number 93; 1997; 259 pages; Softcover; ISBN 0-8218-0574-6; List \$39; All individuals \$31; Order code CBMS/93MC

Fine Regularity of Solutions of Elliptic Partial Differential Equations

Jan Malý, *Charles University, Prague, Czech Republic*, and William P. Ziemer, *Indiana University, Bloomington*

The primary objective of this book is to give a comprehensive exposition of results surrounding the work of the authors concerning boundary regularity of weak solutions of second-order elliptic quasilinear equations in divergence form. The structure of these equations allows coefficients in certain L^p spaces, and thus it is known from classical results that weak solutions are locally Hölder continuous in the interior. Here it is shown that weak solutions are continuous at the boundary if and only if a Wiener-type condition is satisfied. This condition reduces to the celebrated Wiener criterion in the case of harmonic functions. The work that accompanies this analysis includes the "fine" analysis of Sobolev spaces and a development of the associated nonlinear potential theory. The term "fine" refers to a topology of \mathbb{R}^n which is induced by the Wiener condition.

The book also contains a complete development of regularity of solutions of variational inequalities, including the double obstacle problem, where the obstacles are allowed to be discontinuous.

Mathematical Surveys and Monographs, Volume 51; 1997; 291 pages; Hardcover; ISBN 0-8218-0335-2; List \$75; Individual member \$45; Order code SURV/51MC

Harmonic Functions on Trees and Buildings

Adam Korányi, *CUNY, Herbert H. Lehman College, Bronx*

This volume presents the proceedings of the workshop "Harmonic Functions on Graphs" held at the Graduate Center of CUNY in the fall of 1995. The main papers present material from four minicourses given by leading experts: D. Cartwright, A. Figà-Talamanca, S. Sawyer and T. Steger. These minicourses are introductions which gradually progress to deeper and less known branches of the subject. One of the topics treated is buildings, which are discrete analogues of symmetric spaces of arbitrary rank; buildings of rank are trees. One of the minicourses discusses buildings from the combinatorial perspective and another examines them from the p -adic perspective. The third minicourse deals with the connections of trees with p -adic analysis. And the fourth deals with random walks, i.e., with the probabilistic side of harmonic functions on trees.

Contemporary Mathematics, Volume 206; 181 pages; Softcover; ISBN 0-8218-0605-X; List \$35; Individual member \$21; Order code CONM/206MC

An Introduction to Algebraic Geometry

Kenji Ueno, *Kyoto University, Japan*

This introduction to algebraic geometry allows readers to grasp the fundamentals of the subject with only linear algebra and calculus as prerequisites. After a brief history of the subject, the book introduces projective spaces and projective varieties, and explains plane curves and resolution of their singularities. The volume further develops the geometry of algebraic curves and treats congruence zeta functions of algebraic curves over a finite field. It concludes with a complex analytical discussion of algebraic curves.

Translations of Mathematical Monographs, Volume 166; 1997; 246 pages; Hardcover; ISBN 0-8218-0589-4; List \$79; Individual member \$47; Order code MMONO/166MC

Mathematics of Stochastic Manufacturing Systems

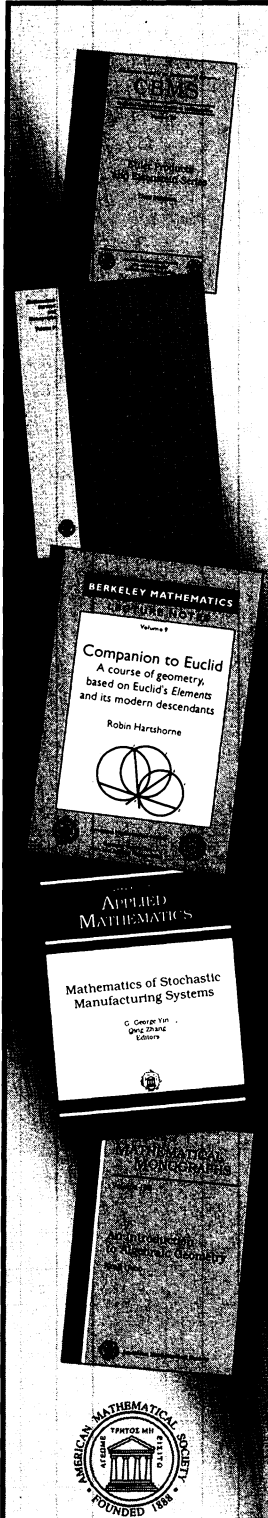
G. George Yin, *Wayne State University, Detroit, MI*, and Qing Zhang, *University of Georgia, Athens*

This volume presents the proceedings of the 26th AMS-SIAM Summer Seminar in Applied Mathematics, "The Mathematics of Stochastic Manufacturing Systems", held in June 1996 at the College of William and Mary (Williamsburg, VA).

In this volume, leading experts in mathematical manufacturing research and related fields review and update recent advances in mathematics of stochastic manufacturing systems and attempt to bridge the gap between theory and applications. The topics covered include scheduling and production planning, modeling of manufacturing systems, hierarchical control for large and complex systems, Markov chains, queueing networks, numerical methods for system approximations, singular perturbed systems, risk-sensitive control, stochastic optimization methods, discrete event systems, and statistical quality control.

This book presents research problems, techniques for dealing with problems, and future directions. The interdisciplinary nature is of great advantage to the applied mathematics and manufacturing research community.

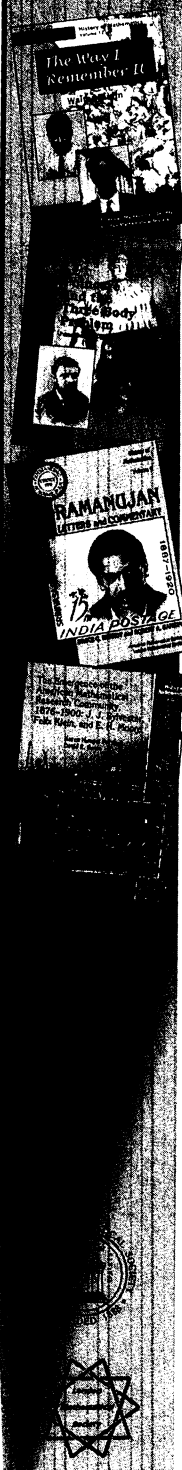
Lectures in Applied Mathematics, Volume 33; 1997; 399 pages; Softcover; ISBN 0-8218-0755-2; List \$69; Individual member \$41; Order code LAM/33MC



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Volume 12; 1997, reprinted 1997; 191 pages; Softcover; ISBN 0-8218-0633-5; List \$29; All AMS members \$23; Order code HMATH/12MC

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Volume 11; 1997, reprinted with corrections 1997; 272 pages; Softcover; ISBN 0-8218-0367-0; List \$39; All AMS members \$31; Order code HMATH/11MC

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—*American Mathematical Monthly*

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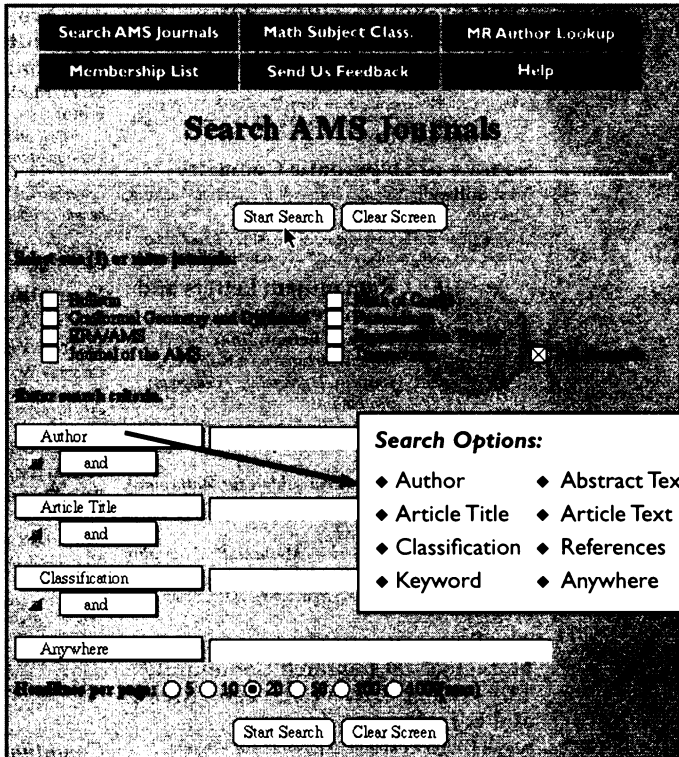
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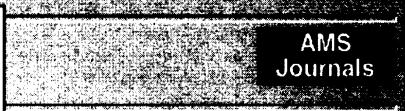
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