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BULLETIN BIBLIOGRAPHIQUE

Egbert BRIESKORN, Horst KNÖRRER. — **Plane algebraic curves.** — Translated from the German by John Stillwell. — Un vol. relié, $18 \times 24,5$, de vi, 721 p. — Prix: SFr. 88.00. — Birkhäuser Verlag, Basel, 1986.

Arising from notes for a course given at the University of Bonn in Germany, this book reflects the author's concern for the student audience through emphasis upon motivation, development of imagination, and understanding of basic ideas. As classical objects, curves may be viewed from many angles; this text provides a foundation for the comprehension and exploration of modern work on singularities.

Jeremy GRAY. — **Linear differential equations and group theory from Riemann to Poincaré.** — Un vol. relié, $16,5 \times 24$, de xxv, 460 p. — Prix: SFr. 98.00. — Birkhäuser Verlag, Boston, 1986.

This book looks at the historical origins of the geometric side of complex function theory, culminating in Klein's and Poincaré's theory of automorphic functions. *Contents:* Hypergeometric equations and modular equations. — Lazarus Fuchs. — Algebraic solutions to a differential equation. — Modular equations. — Some algebraic curves. — Automorphic functions.

R. HARDT, L. SIMON. — **Seminar on geometric measure theory.** — DMV Seminar, vol. 7. — Un vol. broché, 17×24 , de 117 p. — Prix: SFr. 28.00. — Birkhäuser Verlag, Basel, 1986.

These notes are based on ten 90 minute lectures given in the "Seminar on Geometric Measure Theory" held at Schloss Mickeln, Düsseldorf, from June 11-15, 1984. The aim was to provide a solid introduction to the main ideas of the subject, in a style palatable to analysts, and to provide a "base" from which the further literature would be readily accessible.

Richard P. STANLEY. — **Enumerative combinatorics, volume I.** — The Wadsworth and Brooks/Cole mathematics series. — Un vol. relié, 17×24 , de xi, 306 p. — Prix: \$42.95. — Wadsworth and Brooks/Cole advanced books and software, Monterey, California, 1986.

What is enumerative combinatorics? Sieve methods. — Partially ordered sets. — Rational generating functions. — Graph theory terminology. — Exercices à la fin de chaque chapitre avec leurs solutions.

Vladimir M. TIKHOMIROV. — **Fundamental principles of the theory of extremal problems.** — Translated by Bernd Luderer. — A Wiley-Interscience publication. — Un vol. relié, 16×24 , de 136 p. — Prix: £13.95. — John Wiley and sons, Chichester, 1986.

Background material. — The Lagrange principle for constrained problems. — The duality principle in convex analysis and convex programming. — The principle of extension of

variational problems. — The principle of complete constraint removal, the Hamilton-Jacobi principle, the invariance principle. Some examples.

J. W. S. CASSELS. — **Local fields.** — London mathematical society student texts, vol. 3. — Un vol. broché, 15,5 × 22,5, de xiv, 360 p. — Prix: £9.95 (relié: £27.50). — Cambridge University press, Cambridge, 1986.

General properties. — Archimedean valuations. — Non archimedean valuations. Simple properties. — Embedding theorem. — Transcendental extensions. Factorization. — Algebraic extensions (complete fields). — p-adic fields. — Algebraic extensions (incomplete fields). — Algebraic number fields. — Diophantine equations. — Advanced analysis. — A theorem of Borel and Dwork.

C. B. THOMAS. — **Elliptic structures on 3-manifolds.** — London mathematical society lecture note series, vol. 104. — Un vol. broché, 15,5 × 22,5, de 121 p. — Prix: £8.50. — Cambridge University press, Cambridge, 1986.

The aim of this book is to present all the known material on the classification of free actions by finite groups on the standard three-sphere. The book is an expanded version of notes for a course given at the University of Chicago, and draws on work by R. Myers, H. Rubinstein, J. F. Adams and the author.

Harry GONSHOR. — **An introduction to the theory of surreal numbers.** — London mathematical society lecture note series, vol. 110. — Un vol. broché, 15,5 × 22,5, de 191 p. — Prix: £12.50. — Cambridge University press, Cambridge, 1986.

The surreal numbers form a system which includes both ordinary real numbers and the ordinals. Since their introduction by J. H. Conway, the theory of surreal numbers has seen a rapid development revealing many natural and exciting properties. These notes provide a formal introduction to the theory. The topics covered include exponentiation and generalised ε -numbers.

Alan F. KARR. — **Point processes and their statistical inference.** — Probability: pure and applied, a series of textbooks and reference books, vol. 2. — Un vol. relié, 16 × 24, de xi, 490 p. — Prix: \$89.75 (U.S. and Canada) \$107.50 (all other countries). — Marcel Dekker, Inc., New York, 1986.

Point processes: distribution theory. — Point processes: intensity theory. — Inference for point processes: introduction. — Empirical processes associated with a sequence of point. — Intensity-based inference: general theory. — Inference for Poisson processes on general spaces. — Inference for Cox processes on general spaces. — Nonparametric inference for renewal processes. — Inference for stationary point processes. — Inference for stochastic processes based on point process samples.

V. I. ARNOLD. — **Catastrophe theory.** — Second, revised and expanded edition. — Translated from the Russian by G. S. Wassermann, based on a translation by R. K. Thomas. — Un vol. broché, 13,5 × 20,5, de ix, 108 p. — Prix: DM 26.80. — Springer-Verlag, Berlin, 1986.

The author begins by describing the established results in the theory of singularities and bifurcation and continues with chapters on the applications of the theory to topics such as wave-front propagation, the distribution of matter within the universe, and optimisation and control. The presentation is enhanced by numerous diagrams.

Patrick J. RYAN. — **Euclidean and non-Euclidean geometry: an analytical approach.** — Un vol. broché, 20,5 × 23,5, de xvii, 215 p. — Prix: £9.95 (broché) £27.50 (relié). — Cambridge University press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1986.

This book gives a rigorous treatment of the fundamentals of plane geometry — Euclidean, spherical, elliptical, and hyperbolic — from an analytic point of view. It serves several purposes, the most obvious one of which is to acquaint the reader with certain geometrical facts, namely, the classical results of plane Euclidean and non-Euclidean geometry, congruence theorems, concurrence theorems, classification of isometries, angle addition, trigonometrical formulas, and the like.

Jorge MUJICA. — **Complex analysis in Banach spaces: holomorphic functions and domains of holomorphy in finite and infinite dimensions.** — North-Holland mathematics studies, vol. 120. — Notas de matematica, vol. 107. — Un vol. broché, 16,5 × 24, de xi, 434 p. — Prix: Dfl. 160.00. — North-Holland, Amsterdam/New York/Oxford, 1986.

Problems arising from the study of holomorphic continuation and holomorphic approximation have been central in the development of complex analysis in finitely many variables, and constitute one of the most promising lines of research in infinite dimensional complex analysis. This book presents a unified view of these topics in both finite and infinite dimensions.

Aspects of positivity in functional analysis. — Proceedings of the conference held on the occasion of H. H. Schaefer's 60th birthday, Tübingen, 24-28 June 1985. — Edited by R. Nagel, U. Schlotterbeck, M. P. H. Wolff. — North-Holland mathematics studies, vol. 122. — Notas de matematica, vol. 108. — Un vol. broché, 16,5 × 24, de xiii, 277 p. — Prix: Dfl. 110.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

The following areas are discussed in the contributions: potential theory, partial differential operators of second order, Schrödinger operators, theory of convexity, one-parameter semi-groups, Lie algebras, Markov processes, operator-algebras, noncommutative integration and geometry of Banach spaces.

Anastasios MALLIOS. — **Topological algebras: selected topics.** — North-Holland mathematics studies, vol. 124. — Notas de matematica, vol. 109. — Un vol. broché, 16,5 × 24, de xx, 535 p. — Prix: Dfl. 175.00. — North-Holland, Amsterdam/New York/Oxford, Tokyo, 1986.

This volume is addressed to those who wish to apply the methods and results of the theory of topological algebras to a variety of disciplines, even though confronted by particular or less general forms. It may also be of interest to those who wish, from an entirely theoretical point of view, to see how far one can go beyond the classical framework of Banach algebras while still retaining substantial results.

Group and semigroup rings. — Proceedings of the international conference on group and semigroup rings, University of the Witwatersrand, Johannesburg, South Africa 7-13 July, 1985. — North-Holland mathematics studies, vol. 126. — Notas de matematica, vol. 111. — Un vol. broché, 16,5 × 24, de viii, 267 p. — Prix: Dfl. 125.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

A broad range of topics is covered, including commutative monoid rings, the Jacobson radical of semigroup rings, blocks of modular group algebras, nilpotency index of the radical of group algebras, the isomorphism problem for group rings, inverse semigroup algebras and the Picard group of an abelian group ring.

Aspects of mathematics and its applications. — Edited by Jorge Alberto Barroso. — North-Holland mathematical library, vol. 34. — Un vol. relié, 15,5 × 23, de xvi, 942 p. — Prix: Dfl. 400.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

From the preface: An international mathematics symposium was held in honour of Leopoldo Nachbin in Rio de Janeiro in August (2 to 6, 1982) with the participation of mathematicians from Brazil, France, Ireland, the U.S.A., Venezuela and East Germany. The proceedings of that meeting were not published, as it was felt preferable to make available the present collection of writings in homage of him.

Combinatorics '84. Proceedings of the International conference on finite geometries and combinatorial structures, Bari, Italy, 24-29 September, 1984. — Edited by A. Barlotti, M. Biliotti, A. Cossu, G. Korchmaros, G. Tallini. — North-Holland mathematics studies, vol. 123. — Annals of discrete mathematics, vol. 30. — Un vol. broché, 16,5 × 24, de xi, 391 p. — Prix: Dfl. 150.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

Interest in combinatorial techniques has been greatly enhanced by the applications they may offer in connection with computer technology. The 38 papers in this volume survey the state of the art and report on recent results in combinatorial geometries and their applications.

Jaroslav LUKEŠ, Jan MALÝ, Luděk ZAJÍČEK. — **Fine topology methods in real analysis and potential theory.** — Lecture notes in mathematics, vol. 1189. — Un vol. broché, 16,5 × 24,5 de x, 472 p. — Prix: DM 73.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

Fine topology is an important tool in potential theory. Quite similar properties are displayed by the density topology studied in real analysis. The aim of the book is to establish new unifying views, methods and results connected with these topologies and their applications in the fields mentioned.

Geometrical and statistical aspects of probability in Banach spaces. — Actes des Journées SMF de Calcul des probabilités dans les espaces de Banach, organisées à Strasbourg les 19 et 20 juin 1985. — Ed. by X. Fernique, B. Heinkel, M. B. Marcus and P. A. Meyer. — Lecture notes in mathematics, vol. 1193. — Un vol. broché, 16,5 × 24,5 de iv, 128 p. — Prix: DM 23.00. — Springer-Verlag, Berlin/Heidelberg/New York/Toronto, 1986.

The following themes are developed in these contributions of the Strasbourg meeting on Probability in Banach spaces: empirical processes (invariance principles, rates of convergence in the central limit theorem...), relationship between asymptotic behaviours of a sequence of Banach space valued random variables and the geometry of that Banach space, convergence properties of gaussian and Rademacher-Fourier quadratic forms.

Complex analysis and algebraic geometry. — Proceedings of a conference held in Göttingen, June 25-July 2, 1985. — Ed. by H. Grauert. — Lecture notes in mathematics, vol. 1194. — Un vol. broché, 16,5 × 24,5 de vi, 235 p. — Prix: DM 35.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

This volume of the 1985 Göttingen conference on Complex analysis and algebraic geometry reflects the scope and the objectives of the meeting itself, highlighting the use of methods from real analysis and algebraic geometry in recent research on complex analysis of several variables.

J. Lucas M. BARBOSA, A. Gervasio COLARES. — **Minimal surfaces in \mathbf{R}^3** . — Lecture notes in mathematics, vol. 1195. — Un vol. broché, $16,5 \times 24,5$ de x, 124 p. — Prix: DM 23.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

The character of the book is something between an introduction and a survey with proofs. It has a twofold purpose: first, to be useful as an introduction to the study of minimal surfaces, and second, to constitute a catalogue of old and new examples of such surfaces.

Eduardo CASAS-ALVERO, Sebastian XAMBO-DESCAMPS. — **The enumerative theory of conics after Halphen**. — Lecture notes in mathematics, vol. 1196. — Un vol. broché, $16,5 \times 24,5$ de ix, 130 p. — Prix: DM 23.00. — Springer-Verlag, Berlin/Heidelberg/New York/Paris/London/Tokyo, 1986.

This memoir deals on the one hand with understanding the contents of Halphen's contribution to the subject of enumerative theory of conics, and on the other with extending his theory to conditions of any codimension.

Ring theory. — Proceedings of an international conference held in Antwerp, April 1-5, 1985. — Ed. by F. M. J. van Oystaeyen. — Lecture notes in mathematics, vol. 1197. — Un vol. broché, $16,5 \times 24,5$ de v, 231 p. — Prix: DM 35.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

The Antwerp meeting on Ring theory was organized in the framework of the "Contact franco-belge en algèbre", but participants were also invited from further afield. This volume illustrates well the breadth of ring theory both in its roots from group theory, number theory, physics, representation theory... etc. and in its ramifications to homological algebra, sheaf theory, K -theory, field theory, geometry, etc.

Séminaire d'analyse P. Lelong - P. Dolbeault - H. Skoda. — Années 1983/1984. — Ed. par P. Lelong, P. Dolbeault et H. Skoda. — Lecture notes in mathematics, vol. 1198. — Un vol. broché, $16,5 \times 24,5$ de x, 260 p. — Prix: DM 42.50. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

The topics studied in this volume relate to the development of complex analysis and complex analytic geometry. Some of the papers deal with classical complex problems of function theory and holomorphic mappings, while others give new results on function algebras, vector bundles, differential systems, Cauchy-Riemann manifolds, and microanalysis.

Lectures in universal algebra. — Ed. by L. Szabo and A. Szendrei. — Colloquia mathematica societatis Janos Bolyai, vol. 43. — Un vol. relié, 17×24 de 655 p. — Prix: Dfl. 260.00. — North-Holland, Amsterdam/Oxford/New York, 1986.

These 34 papers cover topics from various problems on varieties and other classes of algebras including categorical aspects and duality theory to the structure of finite algebras and clones on finite (or infinite) sets. As well as survey articles by invited speakers, the papers contain full proofs of new results not published elsewhere.

Algebra, combinatorics and logic in computer science. — Ed. by J. Demetrovics, G. Katona, A. Salomaa. — Colloquia mathematica societatis Janos Bolyai, vol. 42. — Deux volumes reliés, 17×24 de 449 p. et 436 p. — Prix: Dfl. 350.00. — North-Holland, Amsterdam/Oxford/New York, 1986.

These two volumes contain expository papers and short research reports covering the most important theoretical (mainly algebraic and logical) aspects of computer science.

Theory of algorithms. — Ed. by L. Lovasz and E. Szemerédi. — Colloquia mathematica societatis Janos Bolyai, 44. — Un vol. relié, 17 × 24 de 430 p. — Prix: Dfl. 180.00. — North-Holland, Amsterdam/Oxford/New York, 1986.

These papers embrace many topics of theoretical computer science, including algorithmic problems on lattices, parallel computing, maze searching, *NP*-hard and *NP*-complete problems and some new approaches to characterize computational complexity.

Random graphs '83. — Based on lectures presented at the 1st Poznan seminar on random graphs, August 23-25, 1983, organised and sponsored by the Institute of Mathematics, Adam Mickiewicz University, Poznan, Poland. — Ed. by Michal Karonski and A. Rucinski. — North-Holland mathematics studies, vol. 118. — Annals of discrete mathematics, vol. 28. — Un vol. broché, 16,5 × 24 de x, 364 p. — Prix: Dfl. 160.00. — North-Holland, Amsterdam/New York/Oxford, 1986.

The range of random graph topics covered in this volume includes structure, colouring, algorithms, mappings, trees, network flows and percolation. The papers also illustrate the application of probability methods to Ramsey's problems, the application of graph theory methods to probability, and relations between games on graphs and random graphs.

L. LOVASZ, M. D. PLUMMER. — **Matching theory.** — North-Holland mathematics studies, vol. 121. — Annals of discrete mathematics, vol. 29. — Un vol. broché, 16,5 × 24, de xxxiv, 544 p. — Prix: Dfl. 200.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

This study of matching theory deals with bipartite matching, networks flows, and presents fundamental results for the non-bipartite case. It goes on to study elementary bipartite graphs and elementary graphs in general. Further discussed are 2-matchings, general matching problems as linear programs, the Edmonds matching algorithm, *f*-factors and vertex packing.

Mathematics and computer science. — Proceedings of the CWI symposium, November 1983. — Edited by J. W. de Bakker, M. Hazewinkel, J. K. Lenstra. — CWI monograph, vol. 1. — Un vol. relié, 17,5 × 24,5, de viii, 352 p. — Prix: Dfl. 150.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

The rapid development of both mathematics and computer science has created many new interrelations at their interface. All the topics covered in this volume are relevant to both disciplines. This is the 1st volume in the series from the Centre for Mathematics and Computer Science, a non-profit research institute.

K. D. STROYAN, José Manuel BAYOD. — **Foundations of infinitesimal stochastic analysis.** — Studies in logic and the foundations of mathematics, vol. 119. — Un vol. relié, 16 × 23, de xii, 478 p. — Prix: Dfl. 150.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

This book gives a complete and elementary account of fundamental results on hyperfinite measures and their application to stochastic processes, including the *-finite Stieltjes sum approximation of martingale integrals. Many detailed examples, not found in the literature, are included.

Logic Colloquium '84. — Proceedings of the colloquium held in Manchester U.K., July 1984. — Ed. by J. B. Paris, A. J. Wilkie, G. M. Wilmers. — Studies in logic and the foundations of mathematics, vol. 120. — Un vol. relié, 16 × 23, de x, 377 p. — Prix: Dfl. 180.00. — North-Holland, Amsterdam/New York/Oxford/Tokyo, 1986.

The main topics treated are the model theory of arithmetic and algebra, the semantics of natural languages, and applications of mathematical logic to complexity theory. The volume contains both surveys and original research papers.

R. Michael RANGE. — **Holomorphic functions and integral representations in several complex variables.** — Graduate texts in mathematics, vol. 108. — Un vol. relié, 16×24 , de XVIII, 386 p. — Prix: DM 128.00. — Springer-Verlag, New York/Berlin/Heidelberg/Tokyo, 1986.

This book differs from existing books on the subject in that it approaches the theory through integral representations, rather than through sheaf theory, commutative algebra and partial differential equations. This enables the author to present substantial results with much less preparatory material.

Oscar ZARISKI. — **Le problème des modules pour les branches planes: cours donné au Centre de mathématiques de l'Ecole polytechnique.** — Nouvelle édition revue par l'auteur. Rédigé par François Kmety et Michel Merle, avec un appendice de Bernard Teissier. — Un vol. broché, $17,5 \times 24$, de x, 212 p. — Prix: FF 180.00. — Hermann, Paris, 1986.

Dans ce travail, l'auteur entreprend systématiquement la classification analytique des branches de courbes planes ayant une topologie fixée. Ce problème est connu, dans le cas des surfaces de Riemann, comme étant celui des problèmes de modules. Ces notes donnent une réponse partielle à ce problème, et ouvrent de nouvelles perspectives de recherche pour le résoudre complètement.

Themistocles M. RASSIAS. — **Foundations of global nonlinear analysis.** — Teubner-Texte zur Mathematik, Bd. 86. — Un vol. broché, $14,5 \times 21,5$, de 220 p. — Prix: M. 23.00. — B. G. Teubner Verlagsgesellschaft, Leipzig, 1986.

This book is devoted to a domain of global nonlinear analysis which could be characterized as the interplay between Morse-Palais-Smale critical point theory and Morse index theorem for variational problems.

Raymond HILL. — **A first course in coding theory.** — Oxford applied mathematics and computing science series. — Un vol. broché, $14 \times 21,5$, de XII, 251 p. — Prix: £12.50. — Clarendon press, Oxford, 1986.

This book provides an elementary, yet rigorous, introduction to the theory of error-correcting codes. It is based on courses given by the author over several years to students ranging from second-year undergraduates to first-year postgraduates.

The large number of exercises, all with solutions, makes the text highly suitable for self-learning.

Topology theory and applications. — Edited by A. Csaszar. — Colloquia mathematica societatis Janos Bolyai, vol. 41. — Un vol. relié, $17,5 \times 24$, de 728 p. — Prix: Dfl. 290.00. — North-Holland, Amsterdam, 1985.

The topics examined in this volume cover many topics of general topology with special emphasis on the application of methods of modern set theory. Some questions of algebraic and differential topology such as homotopy theory, shape theory, cobordism theory, etc. are included as well. Applications of topology in analysis, algebra and other disciplines illustrate the efficacy of topological methods.

Serge LANG. — **Algebraic number theory.** — Graduate texts in mathematics, vol. 110. — Un vol. relié, 16 × 24, de XIV, 354 p. — Prix: DM 72.00. — Springer-Verlag, New York/Berlin/Heidelberg/ London/Paris/Tokyo, 1986.

This is a corrected reprint of Lang's well known textbook. It covers all the basic material of classical algebraic and analytic number theory, giving the student the background necessary for the study of modern number theory.

Analytic theory of continued fractions II. — Proceedings of a Seminar-Workshop held in Pitlochry and Aviemore, Scotland, June 13-29, 1985. — Edited by W. J. Thron. — Lecture notes in mathematics, vol. 1199. — Un vol. broché, 16,5 × 24, de VI, 299 p. — Prix: DM 50.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

This proceedings volume comprises one survey paper (on Schur fractions, Perron-Carathéodory fractions and Szegő polynomials) and 13 research articles falling mainly in two sub-areas, namely convergence theory for continued fractions and continued fraction methods in the solution of strong moment problems. Two-point Padé tables also play an important role in much of the volume.

Vitali D. MILMAN, Gideon SCHECHTMAN. — **Asymptotic theory of finite dimensional normed spaces.** — With an appendix by M. Gromov: isoperimetric inequalities in Riemannian manifolds. — Lecture notes in mathematics, vol. 1200. — Un vol. broché, 16,5 × 24, de VIII, 156 p. — Prix: DM 28.50. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

This volume deals with the geometrical structure of finite dimensional normed spaces. One of the main topics is the estimation of the dimensions of Euclidean and l_p^n spaces which fit nicely into diverse finite dimensional normed spaces.

Curvature and topology of Riemannian manifolds. — Proceedings of the 17th International Taniguchi Symposium held in Katata, Japan, Aug. 26-31, 1985. — Edited by K. Shiohama, T. Sakai and T. Sunada. — Lecture notes in mathematics, vol. 1201. — Un vol. broché, 16,5 × 24, de VII, 336 p. — Prix: DM 50.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

The relation between metric invariants and topological invariants of manifolds has long been one of the most important topics in geometry. Recent work by M. Gromov is having a profound influence upon problems in this area. The papers in this volume are mainly original research articles, covering these topics as well as some spectral geometry, and the existence and non-existence of Einstein metrics.

Arne DÜR. — **Möbius functions, incidence algebras and power series representations.** — Lecture notes in mathematics, vol. 1202. — Un vol. broché, 16,5 × 24, de XI, 134 p. — Prix: DM 23.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

Möbius inversion on partially ordered sets has become a popular enumeration method in combinatorics. In this book a general theory of combinatorial Möbius inversion is presented generalizing Möbius inversion on locally finite partially ordered sets and on monoids with the finite factorization property.

Pierre H. BERARD. — **Spectral geometry: direct and inverse problems.** — With an appendix by G. Besson. — Lecture notes in mathematics, vol. 1207. — Un vol. broché, 16,5 × 24, de

xiii, 272 p. — Prix: DM 42.50. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

This book deals with isoperimetric inequalities on closed Riemannian manifolds and their applications to direct problems in spectral geometry and to inverse geometric problems. Although a research monograph containing unpublished material, this book provides introductory chapters (motivations, Riemannian geometry, analysis) as well as a classified bibliography.

Stochastic processes and their applications. — Proceedings of the International Conference, held in Nagoya, July 2-6, 1985. — Edited by K. Itô and T. Ida. — Lectures notes in mathematics, vol. 1203. — Un vol. broché, $16,5 \times 24$, de vi, 22 p. — Prix: DM 35.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

The papers appearing in this volume explore important new developments in fields extending from stochastic processes to applications in statistics, physics, biology, electrical engineering, etc. The topics include: theory of diffusion processes, stochastic differential equations, stable processes, stochastic flows, random sets and applications to statistical mechanics, quantum dynamics, mathematical, biological and filtering problems.

Lothar COLLATZ. — **Differential equations: an introduction with applications.** — Translated by E. R. Dawson. — A Wiley-Interscience publication. — Un vol. broché, $15,5 \times 23$, de xv, 372 p. — Prix: £11.95. — John Wiley and Sons, Chichester/New York/Brisbane/Toronto/Singapore, 1986.

Ordinary differential equations of the first order. — Ordinary differential equations of higher order. — Boundary-value problems and, in particular, eigenvalue problems. — Particular differential equations. — An excursus into partial differential equations. — Appendix: Some methods of approximation and further examples for practice.

Mathematical modelling methodology, models and micros. — Editors, J. S. Berry, D. N. Burghes, I. D. Huntley, D. J. G. James, A. O. Moscardini. — Ellis Horwood series in mathematics and its applications. — Un vol. relié, $17,5 \times 24,5$, de 318 p. — Prix: £38.50. — Ellis Horwood Ltd, Chichester, Sussex, distributed by John Wiley and Sons, New York/Chichester/Brisbane/Toronto, 1986.

The book contains a wealth of useful and practical information to enhance the studying of mathematics, both to those new to the subject and those with experience. It shows the increasingly important role played by micro-computers in most classroom subjects, particularly in mathematical modelling courses.

Dependence in probability and statistics. — A survey of recent results (Oberwolfach, 1985). — Ed. by Ernst Eberlein and Murad S. Taqqu. — Progress in probability and statistics, vol. 11. — Un vol. relié, $15,5 \times 23,5$, de xi, 473 p. — Prix: SFr. 96.00. — Birkhäuser, Boston/Basel/Stuttgart 1986.

In recent years our understanding of dependence structure and in particular of limiting procedures under dependence assumptions has improved enormously. At the international conference held at Oberwolfach, a number of the participants responsible for the advances in the field were asked to write surveys on the topics of major interest. Various degrees of weak and strong dependence are studied, ranging from mixing conditions and martingale structures to long-range dependence.

Jean DIEUDONNE. — **Abrégé d'histoire des mathématiques, 1700-1900.** — Nouvelle éd., modifiée et mise à jour. — Un vol. broché, $17,5 \times 24$, de 517 p. — Prix: FF 210.00. — Hermann, Paris, 1986.

L'intérêt considérable qui s'est porté sur la première édition de cet ouvrage a fait ressortir l'utilité de le rendre plus accessible au public de plus en plus vaste qu'il pouvait intéresser en en réduisant le format, tout en évitant les détails trop techniques. Dans cette optique, quelques éléments nouveaux et mises à jour ont été ajoutés, en même temps qu'ont été réduits certains développements. Un chapitre a été notamment développé à l'intention des informaticiens.

M. L. TIKU, W. Y. TAN, N. BALAKRISHNAN. — **Robust inference.** — Statistics: textbooks and monographs, vol. 71. — Un vol. relié, $15,5 \times 23,5$, de IX, 321 p. — Prix: \$71.50. — Marcel Dekker, New York and Basel, 1986.

This volume treats a wide class of distributions that constitute plausible alternatives to normality — such as short- and long-tailed symmetric distributions and moderately-skewed distributions — all having finite mean and variance. It illustrates the appropriateness of various robust methods for solving both one-sample and multisample statistical inference problems... develops Laguerre series expansions for Student's t and variance-ratio F statistic distributions... etc.

Algebraic and geometric methods in nonlinear control theory. — Ed. by M. Fliess and M. Hazewinkel. — Mathematics and its applications. — Un vol. relié, $16,5 \times 24,5$, de XII, 642 p. — Prix: Dfl. 225.00/US\$99.00/£69.00. — D. Reidel Publishing Co., Dordrecht/Boston/Lancaster/Tokyo, 1986.

The last 15 years have seen a complete change in the theory of nonlinear automatic control systems. This volume, arising from a conference held in Paris in June 1985, includes survey papers and studies of realistic case examples which show the efficiency of the new mathematical tools.

Advances in probability theory: Limit theorems for sums of random variables. — Ed. by A. A. Borovkov. — Translation series in mathematics and engineering. — Un vol. relié, 17×24 , de XII, 301 p. — Prix: DM 168.00. — Optimization Software, Inc., New York; Springer-Verlag, Berlin/Heidelberg/New York/Tokyo, 1985.

The two main topics of this book are invariance principles and limit theorems for random processes and their applications. The book reflects current state-of-the-art in the Soviet Union. It deals with the development of general invariance principle from mathematical statistics, limit theorems for random processes of particular types, etc.

Statistics and control of stochastic processes: Steklov Seminar, 1984. — Ed. by N. V. Krylov, R. Sh. Lipster, and A. A. Novikov. — Translation series in mathematics and engineering. — Un vol. relié, $17,5 \times 24$, de XIII, 506 p. — Prix: DM 198.00. — Optimization Software, Inc., New York; Springer-Verlag, Berlin/Heidelberg/New York/Tokyo, 1985.

The main topics featured at the Seminar are: statistical and sequential analysis, filtering, stochastic control of random processes, and related stochastic calculus (martingales, stochastic differential systems). This volume is dedicated to Prof. Albert Nikolaevich Shyryaev on his 50th birthday. All the participants of the Seminar have been enriched by his ideas and have freely partaken of his vast store of knowledge.

Hyo Chul MYUNG. — **Malcev-admissible algebras.** — Progress in mathematics, vol. 64. — Un vol. relié, 15,5 × 24, de xvi, 353 p. — Prix: SFr. 118.00. — Birkhäuser, Boston/Basel/Stuttgart, 1986.

This book presents a self-contained and detailed account of the mathematical theory of Lie-admissible algebras which is based on the research of mathematicians and physicists since 1977. It deals with the structure of a broader class of algebras, called Malcev-admissible algebras, which generalize Lie and Malcev algebras. A bibliography with over 130 entries is included.

R. C. BAKER. — **Diophantine inequalities.** — London mathematical society monographs. New series, vol. 1. — Un vol. relié, 16 × 24, de xii, 275 p. — Prix: £32.00. — Clarendon Press, Oxford; Oxford University Press, Oxford/New York, 1986.

Fourier analysis. — Heilbronn's theorem and Schmidt's extension. — Vinogradov's mean value method. — The solution of Davenport's problem. — The methods of sums of k th powers. — Schmidt's lattice method. — The lattice method for polynomials of arbitrary degree. — Quadratic forms. — Simultaneous approximation for quadratic forms and additive forms. — Non-negative solutions of additive equations. — Small solutions of additive congruences. — Small solutions of additive equations of odd degree. — Diophantine inequalities for forms of odd degree. — Exponential sums: forms with integer coefficients. — The invariants g and h . — Exponential sums: polynomials on a finite group. — Small solutions of congruences to general modulus.

Fuzzy sets theory and applications. — Ed. by André Jones, Arnold Kaufmann, and Hans-Jürgen Zimmermann. — NATO ASI series C: Mathematical and physical sciences, vol. 177. — Un vol. relié, 16,5 × 24,5, de xii, 403 p. — Prix: Dfl. 160.00/US\$69.50/£49.00. — D. Reidel Publishing Company, Dordrecht/Boston/Lancaster/Tokyo, 1986.

"Fuzzy set theory, which gathered round its founder Leofid A. Zadeh a large number of specialists during the Summer School at Louvain-la-Neuve, Belgium, 8-20 July 1985, has been studied, enlarged and extended into various fields. As a result it contributes to the present world research where data processing and decision making rely on notions such as randomness, uncertainty, evidence, fuzziness, which can be combined, if necessary, to hybrid systems properly applicable to many areas of knowledge." (from the preface).

Constructive methods of Wiener-Hopf factorization. — Ed. by I. Gohberg, M. A. Kaashoek. — Operator theory: Advances and applications, vol. 21. — Un vol. relié, 17 × 24, de xii, 409 p. — Prix: SFr. 98.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1986.

This volume contains a selection of papers about a new approach to the problem of Wiener-Hopf factorization for rational and analytic matrix valued functions. The main advantage of this new approach is that it allows one to get the factors and the indices in a Wiener-Hopf factorization explicitly in terms of the original matrix valued function. This volume is a result of research which for a large part was done at Vrije Universiteit (Amsterdam) and was started about 10 years ago.

Seminar on stochastic processes, 1985. — Ed. by E. Cinlar, K. L. Chung, R. K. Gettoor. — Progress in probability and statistics, vol. 12. — Un vol. relié, 15,5 × 23,5, de 324 p. — Prix: SFr. 78.00. — Birkhäuser-Verlag, Boston/Basel/Stuttgart, 1986.

This is the 5th volume in a series which reports on current progress in stochastic processes. Topics covered include: decomposition of excessive measures, Brownian excursions and

minimal thinness, Doubly-Feller processes with multiplicative functionals homogeneous random measures, regenerative systems, time changes and duality of Markov processes, Brownian occupation measures.

Aurel BEJANCU. — **Geometry of CR-submanifolds.** — Mathematics and its applications (East European series). — Un vol. relié, $15,5 \times 23$, de XII, 169 p. — Prix: Dfl. 120.00/US\$49.50/£33.25. — D. Reidel Publishing Co., Dordrecht/Boston/Lancaster/Tokyo, 1986.

The concept of CR-manifolds of a Kählerian manifold was first introduced by A. Bejancu in 1978. Since then many papers have been published and this book deals with all the important results achieved in the differential geometry of CR-manifolds so far. As a whole, the work should be seen as a straightforward introduction to a promising new field of differential geometry.

Claude ZUILY. — **Problèmes de distributions avec solutions détaillées.** — Collection «Méthodes». — (La page de couverture porte: Distributions et équations aux dérivées partielles: exercices corrigés). — Un vol. broché, 15×22 , de 245 p. — Prix: FF 136.00. — Paris: Hermann, 1986.

Cette nouvelle édition de «Problèmes de distributions» revue et corrigée, est complétée par une cinquantaine d'exercices nouveaux avec solutions. Un tel recueil de problèmes corrigés permet l'initiation à la théorie des distributions, en insistant sur le calcul dans les espaces de distributions. Le lecteur y trouvera également de nombreuses applications des distributions aux équations aux dérivées partielles.

Lawrence J. HUBERT. — **Assignment methods in combinatorial data analysis.** — Statistics: textbooks and monographs, vol. 73. — Un vol. relié, $16 \times 23,5$, de X, 326 p. — Prix: \$69.75 (U.S.A. and Canada), \$83.50 (All other countries), \$34.75 (On orders of five or more copies for classroom use only in the U.S.A. and Canada). — Marcel Dekker, Inc., New York/Basel, 1987.

This book highlights the general linear model, with attention to multiple regression, analysis of variance, and analysis of covariance. It analyzes the applications and extensions of the linear assignment model, covering the evaluation of correspondence between two rectangular matrices of the same size. It also delineates applications and extensions of the quadratic assignment model, including coverage of multiple proximity matrices.

Methods of functional analysis in approximation theory. — Proceedings of the International Conference held at the Indian Institute of Technology, Bombay, December 16-20, 1985. — Edited by C. A. Micchelli, D. V. Pai, B. V. Limaye. — International series of numerical mathematics, vol. 76. — Un vol. relié, 17×24 , de 410 p. — Prix: SFr. 88.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1986.

The objective of the papers included in this proceedings volume is to highlight recent research trends in the following main topics: spline theory and applications, convex analysis and best approximation, optimal estimation and n -widths, approximation by positive maps, interpolation and complex approximation, approximate solutions of operator equations including eigenvalue problems.

Vladimir A. MARCHENKO. — **Sturm-Liouville operators and applications.** — Translated from the Russian by A. Iacob. — Operator theory, vol. 22. — Un vol. relié, 17×24 , de XI, 367 p. — Prix: SFr. 110.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1986.

The book gives a clear, rigorous, and self-contained exposition of transformation operators, boundary-value problems on a finite interval, spectral functions on the half line, the direct and inverse scattering problems on the half line and the line, the inverse spectral problem on the half line and inverse problems on a finite interval, and, finally, applications to nonlinear evolution equations of KdV type, including explicit formulas for solutions.

L. R. MUSTOE. — **Worked examples in engineering mathematics.** — Un vol. broché, 13 × 20, de x, 111 p. — Prix: £4.95. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto/Singapore, 1986.

Worked examples are an extremely useful means by which students can improve their understanding of mathematics and the ability to apply their skills to non-standard problems. This book supplies worked solutions to a wide variety of examination questions in engineering mathematics.

Littlewood's miscellany. — Edited by Bella Bollobas. — Un vol. broché, 15,5 × 22,5, de 200 p. — Prix: £5.95 (relié: £17.50). — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1986.

“Littlewood's miscellany”, which includes most of the earlier work as well as much of the material Prof. Littlewood collected after the publication of “A Mathematician's miscellany”, allows us to see academic life in Cambridge, especially in Trinity College, through the eyes of one of its greatest figures.

Arithmetic geometry. — Edited by Gary Cornell, Joseph H. Silverman. — With contributions by M. Artin, C. L. Chai, T. Chinburg, G. Faltings, B. H. Gross, F. O. McGuinness, J. S. Milne, M. Rosen, S. S. Shatz, J. H. Silverman, P. Vojta. — Un vol. relié, 16,5 × 24, de xv, 353 p. — Prix: DM 84.00. — Springer-Verlag, New York/Berlin/Heidelberg/London/Paris/Tokyo, 1986.

This book is the result of a conference on arithmetic geometry, held July 30-August 10, 1984 at the University of Connecticut at Storrs. This subject has enjoyed a resurgence in popularity due in part to Faltings' proof of Mordell's conjecture. The purpose of the conference was to provide a coherent overview of the subject. Included is a translation into English of Faltings' ground-breaking paper.

Mikhael GROMOV. — **Partial differential relations.** — Ergebnisse der Mathematik und ihrer Grenzgebiete, 3. Folge, Bd. 9. — Un vol. relié, 17 × 25, de ix, 363 p. — Prix: DM 148.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

The subject of this book originated in the work of Nash, Smale, Hirsch and Kuiper on differential and isometric immersions in the 1950's. It provides a unified and systematic account of these topics and covers the development in the last 25 years which to a large extent is due to the author himself and has not been published before. The book contains a wealth of new ideas and exciting results as well as problems, explicit or implicit, for future research.

Umberto BOTTAZZINI. — **The higher calculus: a history of real and complex analysis from Euler to Weierstrass.** — Translated by Warren Van Egmond. — Un vol. relié, 16 × 24, de vii, 332 p. — Prix: DM 96.00. — Springer-Verlag, New York/Berlin/Heidelberg/London/Paris/Tokyo, 1986.

This is a detailed account of the growth of the theory of functions of real and complex variables which developed into a separate concept of mathematics during the course of the

19th century. The book is unique, especially in its coverage of complex analysis which experienced its most important development in the work of Weierstrass.

T. N. SHOREY, R. TIJDEMAN. — **Exponential diophantine equations.** — Cambridge tracts in mathematics, vol. 87. — Un vol. relié, $15,5 \times 24$, de IX, 240 p. — Prix: £25.00. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1986.

This is the first integrated presentation of this topic and so will be of interest to all number theorists. The authors present, in a clear and unified fashion, applications to exponential diophantine equations and linear recurrence sequences of the Gelfond-Baker theory of linear forms in logarithms of algebraic numbers. Topics covered include the Thue equations, the generalised hyperelliptic equation and the Fermat and Catalan equations.

Bruce BLACKADAR. — **K-theory for operator algebras.** — Mathematical Sciences Research Institute Publications, vol. 5. — Un vol. relié, $16,5 \times 24$, de VIII, 337 p. — Prix: DM 78.00. — Springer-Verlag, New York/Berlin/Heidelberg/London/Paris/Tokyo, 1986.

The theory of operator algebras and K -theory have become more and more intertwined in the course of the past few years. The use of K -theory has given tremendous insight into the structure of operator algebras and has led to deep and unexpected applications in topology and geometry. This book is the first to present a unified treatment of operator K -theory, developing the K -theory of Banach algebras, the theory of extensions of C^n algebras, and the operator K -theory of Kasparov from scratch to its most advanced aspects.

Edmund LANDAU, Dieter GAIER. — **Darstellung und Begründung einiger neuerer Ergebnisse der Funktionentheorie.** — 3., erweiterte Aufl. — Un vol. relié, 16×24 , de XI, 201 p. — Prix: DM 96.00. — Springer-Verlag, Berlin/Heidelberg /New York/London/Paris/Tokyo, 1986.

Die jedem Funktionentheoretiker bekannten „Ergebnisse der Funktionentheorie“ von E. Landau sind jetzt wieder verfügbar. Die 2. Auflage von 1929 wird unverändert abgedruckt, von D. Gaier mit zwei umfangreichen Anhängen versehen. In Anhang I wird darüber berichtet, was auf den von Landau behandelten Gebieten seit 1929 geschehen ist. In Anhang II werden weitere Entwicklungen der klassischen Funktionentheorie dargestellt.

Dietrich STOYAN, Joseph MECKE. — **Stochastische Geometrie: eine Einführung.** — Wissenschaftliche Taschenbücher, Reihe Mathematik und Physik. — Un vol. broché, $12,5 \times 20$, de 132 p. — Prix: DM 12.50. — Akademie Verlag, Berlin, DDR, 1983.

Mathematische Grundlagen. — Zufällige abgeschlossene Mengen. — Punktprozesse. — Zufällige Masse. — Der Boolesche Modell. — Punktprozessmodelle. — Zufällige linienförmige Strukturen. — Zufällige Mosaike. — Stereologie.

Kenkichi IWASAWA. — **Local class field theory.** — Oxford mathematical monographs. — Un vol. relié, 16×24 , de VIII, 155 p. — Prix: £35.00. — Oxford University Press, New York/Clarendon Press, Oxford, 1986.

From the preface: "...it has been shown that formal groups over local fields can be applied to deduce important results in local class field theory. In recent years, this idea has been further pursued by several mathematicians. Following this trend, we shall try in this book to build up local class field theory entirely by means of the theory of formal groups. This approach ... seems particularly well suited to prove some deeper theorems on local fields."

Gerd GRUBB. — **Functional calculus of pseudo-differential boundary problems.** — Progress in mathematics, vol. 65. — Un vol. relié, 15 × 23,5, de 511 p. — Prix: SFr. 98.00. — Birkhäuser Verlag, Boston/Basel/Stuttgart, 1986.

Pseudo-differential methods are of great importance in the field of partial differential equations, because they permit an “algebraization”, a replacement of compositions of operators in n -space by simpler product rules for their symbols. The present book is concerned with the particular algebra of pseudo-differential boundary operators introduced by Vishik, Eskin and Boutet de Monvel.

Ph. CASSOU-NOGUES, M. J. TAYLOR. — **Elliptic functions and rings of integers.** — Progress in mathematics, vol. 66. — Un vol. relié, 15 × 23,5, de xv, 198 p. — Prix: SFr. 58.00. — Birkhäuser Verlag, Boston/Basel/Stuttgart, 1986.

Based on a series of lectures given by M. J. Taylor as visiting professor at Bordeaux University, this book is an account of recent work on the structure of quadratic imaginary number fields. It will be of interest particularly to algebraic number theorists working in Galois module structure theory.

Inverse problems. — Proceedings of the conference held at the Mathematical Research Institute at Oberwolfach, Black Forest, May 18-24, 1986. — Ed. by John Rozier Cannon, Ulrich Hornung. — International series of numerical mathematics, Vol. 77. — Un vol. relié, 17 × 24, de 192 p. — Prix: SFr. 60.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1986.

This volume contains 14 papers which deal with theoretical and numerical aspects of inverse problems. Various areas of application are covered, among which are seismology, inverse scattering, fluid flow and reaction-diffusion systems. Special emphasis is placed on the ill-posedness of such problems and their adequate numerical treatment.

James M. HENLE. — **An outline of set theory.** — Problem books in mathematics. — Un vol. broché, 15,5 × 23,5, de VIII, 145 p. — Prix: DM 58.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

This book is a problem-oriented introduction to undergraduate set theory. It is intended to be used in a course where the students work in groups on projects and present their solutions to the class. The topics covered include standard undergraduate set theory, non-standard analysis, large cardinals, and Goodstein's theorem.

Leonard S. CHARLAP. — **Bieberbach groups and flat manifolds.** — Universitext. — Un vol. broché, 15,5 × 23,5, de XIII, 242 p. — Prix: DM 78.00. — Springer-Verlag, New York/Berlin/Heidelberg/London/Paris/Tokyo, 1986.

This book begins by stating and proving the fundamental results of Bieberbach in his original framework. It then proceeds to recast and extend these results in a more modern setting, introducing the appropriate tools along the way.

Hermann Weyl: 1885-1985. — Centenary lectures delivered by C. N. Yang, R. Penrose, A. Borel at the ETH Zürich. — Ed. by K. Chandrasekharan. — Un vol. relié, 16 × 24, de VII, 119 p. — Prix: DM 58.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

This volume contains the text of the Hermann Weyl Centenary Lectures delivered at the ETH Zürich during 1985. Among the subjects dealt with are gauge theory, relativity theory,

conformal geometry, and Lie groups. The interaction between pure mathematics and theoretical and experimental physics is described in clear and concrete terms, involving the fruitful combination of physical observation with mathematical construction.

Jack Carl Kiefer: collected papers — supplementary volume. — Published with the co-operation of the Institute of Mathematical Statistics and ed. by L. D. Brown, I. Olkin, J. Sacks, H. P. Wynn. — Un vol. relié, 17 × 25, de vi, 56 p. — Prix: DM 45.00. — Springer-Verlag, New York/Berlin/Heidelberg/Tokyo, 1986.

The commentaries in this volume provide reviews of selected papers from the 3-volume "Collected papers of Jack Carl Kiefer" (Springer-Verlag, 1985).

Helmut KOCH. — **Einführung in die klassische Mathematik I.** — Vom quadratischen Reziprozitätsgesetz bis zum Uniformisierungssatz. — Un vol. relié, 17 × 25, de 326 p. — Prix: DM 68.00. — Springer-Verlag, Berlin/Heidelberg/New York/London/Paris/Tokyo, 1986.

Der vorliegende erste Band dieses zweibändigen Werkes stellt klassische Ergebnisse der Mathematik hauptsächlich des 19. und der ersten Hälfte des 20. Jahrhunderts dar. Im Vordergrund stehen dabei Resultate, die einen wesentlichen Einfluss auf die Herausbildung der Strukturmathematik im Sinne von Bourbaki hatten. Sie werden im Geiste der Entstehungszeit aber mit modernen Bezeichnungen dargestellt.

G. Barrie WETHERILL. — **Regression analysis with applications.** — Monographs on statistics and probability. — Un vol. relié, 14,5 × 22, de xi, 311 p. — Prix: £ 18.50. — Chapman and Hall, London/New York, 1986.

Although regression analysis is a very commonly used statistical tool, there are many difficulties that can occur in its application. This book addresses many of these problems from the viewpoint of an applied statistician. Subjects dealt with are: multicollinearity, the use of generalized inverses, outliers and high leverage points, normality, heteroscedasticity, etc.

Séminaire de théorie des nombres, Paris 1984-1985. — Ed. par Catherine Goldstein. — Progress in mathematics, vol. 63. — Un vol. relié, 15 × 23,5, de 252 p. — Prix: SFr. 82.00. — Birkhäuser, Boston/Basel/Stuttgart, 1986.

Continuing the outstanding tradition of the annual Séminaire de Théorie des nombres, this 5th volume contains a collection of papers based on lectures presented in 1984-1985. The new results presented here by an international group of mathematicians reflect the most recent work in many areas of number theory.

A. VERSCHOREN. — **Relative invariants of sheaves.** — Monographs and textbooks in pure and applied mathematics, vol. 104. — Un vol. relié, 16 × 23,5, de xi, 249 p. — Prix: US\$ 71.50. — Marcel Dekker, New York, 1986.

After an introduction to general sheaf theory, this book presents new proofs for results of Gabriel topologies, explains the functorial features of relative and classical invariants with respect to special types of morphisms and considers the connecting of these variants through exact sequences.

Geometry and topology: manifolds, varieties and knots. — Ed. by Clint McCrory, Theodore Shifrin. — Lecture notes in pure and applied mathematics, vol. 105. — Un vol. broché, 18 × 25,5, de viii, 368 p. — Prix: US\$ 83.50. — Marcel Dekker, New York, 1986.

Geometry is a rich source of topological examples as well as tools with which to attack fundamental topological problems. The recent work of S. Donaldson, for example, on four-manifolds illustrates the interrelation of these two fields and serves as a reminder of the essential unity of mathematics.

H. LEHNING, D. JAKUBOWICZ. — **Dérivation: avec exercices.** — Mathématiques supérieures et spéciales, vol. 2. — Un vol. broché, 16 × 24, de 184 p. — Prix: FF 69.00. — Masson, Paris, 1987.

Cet ouvrage traite de la dérivation des fonctions d'une variable réelle à valeurs réelles ou complexes et de ses applications les plus importantes. Les résultats importants sont encadrés, les parties plus délicates sont précédées de la mention «peut-être réservée à une seconde lecture». Enfin, chaque chapitre est suivi d'un grand nombre d'exercices.

Encyclopedia of statistical sciences, vol. 7: Plackett family of distributions — Regression, wrong. — A Wiley-Interscience publication. — Editors in chief: Samuel Kotz, Norman L. Johnson; associate editor: Campbell B. Read; editorial board: M. H. DeGroot, Robert Ferber, Martin R. Frenkel, Eugene Seneta, G. S. Watson. — Un vol. relié, 18 × 26, de ix, 714 p. — Prix: £76.70. — John Wiley & Sons, New York, 1986.

The "Encyclopedia of statistics" is an essential reference work on statistical methods and their application to virtually all facets of human endeavour. Planned as an 8-volume set of some 3 million words, it aims to provide sound information and practical guidance for readers who may not be specialists in a particular topic. In-depth, exhaustive coverage of the philosophical foundations, theoretical bases and computational techniques of statistical methods in a wide variety of contexts is provided.

Michael D. FRIED, Moshe JARDEN. — **Field arithmetic.** — Ergebnisse der Mathematik und ihrer Grenzgebiete, 3. Folge, Bd. 11. — Un vol. relié, 17,5 × 25, de xvii, 458 p. — Prix: DM 198.00. — Springer-Verlag, Berlin, 1986.

From the introduction: "Our topic is the use of algebraic tools — coming mainly from algebraic geometry, number theory, and the theory of profinite groups — in the study of the elementary properties of classes of fields, and related algorithmic problems. (We take the precise definition of "elementary" from first order logic). This subject has its more distant roots in Tarski's observation that, as a consequence of elimination theory, the full elementary theory of the class of all algebraically closed fields is decidable..."

Bryan F. J. MANLY. — **Multivariate statistical methods: A primer.** — Un vol. relié, 15,5 × 22,5, de x, 159 p. — Prix: £15.00 (broché: £6.95). — Chapman and Hall, London, 1986.

The present trend is for statistical methods and arguments to be used increasingly in biology, anthropology, medicine, sociology and many other subject areas. Multivariate analysis is an important area of statistics that is part of this growth. This book is an introductory account of multivariate methods for non mathematicians. The simplest possible approach has been adopted.

Séminaire de probabilités XX, 1984/85. — Proceedings. — Edité par J. Azéma et M. Yor. — Lecture notes in mathematics, vol. 1204. — Un vol. broché, 16,5 × 24, de v, 639 p. — Prix: DM 98.00. — Springer-Verlag, Berlin, 1986.

The volume contains 40 research papers in probability, including a course on quantum probability by P. A. Meyer. Half of the papers were presented during the Journées de probabilité held in Strasbourg and Luminy in 1984-85: the other half were collected by the editors and included in this volume because of their close relationship with topics dealt with recently by French probabilists.

B. Z. MOROZ. — **Analytic arithmetic in algebraic number fields.** — Lecture notes in mathematics, vol. 1205. — Un vol. broché, $16,5 \times 24$, de VII, 177 p. — Prix: DM 28.50. — Springer-Verlag, Berlin, 1986.

This research monograph investigates the analytical properties of L -functions attached to representations of the Weil-group of number fields. It may also be regarded as an introduction to analytic problems in algebraic number fields.

Probability and analysis. — Lectures given at the 1st 1985 Session of the Centro internazionale matematico estivo (C.I.M.E.) held at Varenna (Como), Italy, May 31-June 8, 1985. — Ed. by G. Letta and M. Pratelli. — Lecture notes in mathematics, vol. 1206. — Un vol. broché, $16,5 \times 24$, de VIII, 283 p. — Prix: DM 42.50. — Springer-Verlag, Berlin, 1986.

The main topics covered are: applications of the martingale convergence theorems to Analysis; applications of martingale transforms and martingale inequalities to Fourier analysis in Banach spaces via probabilistic methods; some applications of diffusion processes and large deviations theory to differential geometry.

Sten KAIJSER, Joan Wick PELLETIER. — **Interpolation functors and duality.** — Lecture notes in mathematics, vol. 1208. — Un vol. broché, $16,5 \times 24$, de IV, 167 p. — Prix: DM 28.50. — Springer-Verlag, Berlin, 1986.

Interpolation theory has become not only one of the standard tools in the application of functional analysis but also an important theory in itself. However, despite the fact that duality is one of the most important notions of functional analysis there has not existed a satisfactory duality for interpolation theory itself. In this book the setting for interpolation theory is enlarged, thereby allowing a natural (i.e. functorial) intrinsic duality theory to be defined.

Differential geometry, Peñíscola, 1985. — Proceedings of the 2nd International symposium held at Peñíscola, Spain, June 2-9, 1985. — Ed. by A. M. Naveira, A. Ferrández and F. Mascaró. — Lecture notes in mathematics, vol. 1209. — Un vol. broché, $16,5 \times 24$, de VIII, 306 p. — Prix: DM 50.00. — Springer-Verlag, Berlin, 1986.

The intended subject of these proceedings is differential geometry in general. More specifically, the main topics included here refer to analysis on manifolds, foliations, conformal differential geometry, non-abelian cohomology on manifolds, submanifolds, homogeneous manifolds and heat equation.

Probability measures on groups VII. — Proceedings of a conference held in Oberwolfach, November 10-16, 1985. — Ed. by H. Heyer. — Lecture notes in mathematics, vol. 1210. — Un vol. broché, $16,5 \times 24$, de X, 386 p. — Prix: DM 57.50. — Springer-Verlag, Berlin, 1986.

This volume provides a detailed discussion of recent progress in structural probability theory. Among the topics which lead to new directions of research are: convolution semigroups on the diffeomorphism group over a manifold; Fürstenberg's boundary theory in connection with Lyapunov exponents; Dirichlet space methods in the theory of stochastic differential equations... etc.

Stochastic spatial processes. — Mathematical theories and biological applications. — Proceedings of a conference held in Heidelberg, September 10-14, 1984. — Ed. by P. Tautu. — Lecture notes in mathematics, vol. 1212. — Un vol. broché, 16,5 × 24, de VIII, 311 p. — Prix: DM 50.00. — Springer-Verlag, Berlin, 1986.

The present volume is a collection of research and expository papers which can be grouped under the following headings: spatial branching processes, infinite particle systems, measure-valued processes, percolation, related models, statistics, and biological applications.

L. G. LEWIS, Jr.; J. P. MAY; M. STEINBERGER. — With contributions by J. E. McClure. — **Equivariant stable homotopy theory.** — Lecture notes in mathematics, vol. 1213. — Un vol. broché, 16,5 × 24, de IX, 538 p. — Prix: DM 80.00. — Springer-Verlag, Berlin, 1986.

This volume lays the foundations of equivariant stable homotopy theory, setting up and analyzing the stable category of G -spectra for a compact Lie group G . The first half deals with equivariant duality theory, equivariant transfer maps, and the role of the Burnside ring in equivariant stable homotopy theory. The second half uses equivariant techniques for the construction and analysis of various kinds of nonequivariant spectra.

Lectures in probability and statistics. — Lectures given at the Winter School in Probability and Statistics, held in Santiago de Chile. — Edited by G. del Pino and R. Rebolledo. — Lecture notes in mathematics, vol. 1215. — Un vol. broché, 16,5 × 24, de V, 491 p. — Prix: DM 73.00. — Springer-Verlag, Berlin, 1986.

C. Huber: Théorie de la robustesse. — *Hermann Rost*: On the behaviour of the hydrodynamical limit for stochastic particle systems. — *Victor Solo*: Topics in advanced time series analysis. — *John B. Walsh*: Martingales with a multidimensional parameter and stochastic integrals in the plane.

Transformation groups, Poznan, 1985. — Proceedings of a symposium held in Poznan, July 5-9, 1985. — Edited by S. Jackowski and K. Pawalowski. — Lecture notes in mathematics, vol. 1217. — Un vol. broché, 16,5 × 24, de XIV, 396 p. — Prix: DM 65.00. — Springer-Verlag, Berlin, 1986.

Most of these 25 papers of research nature concern the theory of transformation groups. The main topics include equivariant surgery theory, the equivariant Wall finiteness obstruction and Whitehead torsion, homotopy representations, homotopy group actions, group actions on spheres and cohomology complex projective spaces, cyclic homology and idempotents in group rings, the bounded and thin h -cobordism theorems, free actions and commutative algebra.

Arthur L. BESSE. — **Einstein manifolds.** — Ergebnisse der Mathematik und ihrer Grenzgebiete, Folge 3, Bd. 10. — Un vol. relié, 17,5 × 25, de XII, 510 p. — Prix: DM 198.00. — Springer-Verlag, Berlin, 1987.

Einstein's equations stem from general relativity. In the context of Riemannian manifolds, an independent mathematical theory has developed around them. This book is a successful attempt to organize the abundant literature, with emphasis on examples. Parts of it can be used separately as an introduction to modern Riemannian geometry through topics like homogeneous spaces, submersions, or Riemannian functionals.

Y. KITAOKA. — **Lectures on Siegel modular forms and representation by quadratic forms.** — Tata Institute of Fundamental Research lectures on mathematics, vol. 77. — Un vol. broché, 18,5 × 24, de V, 227 p. — Prix: DM 20.00. — Springer-Verlag, Berlin, 1986.

These notes cover some recent developments in the theory of integral representation of quadratic forms by positive definite integral quadratic forms. As a by-product of the tools used, Kitaoka's theorem on the linear independence of theta series of genus n associated with positive definite integral matrices is proved.

Representations of algebras. — Proceedings of the Durham symposium, 1985. — London Mathematical Society lecture note series, vol. 116. — Ed. by P. Webb. — Un vol. broché, $15 \times 22,5$, de iv, 199 p. — Prix: £15.00. — Cambridge University Press, Cambridge, 1986.

The emphasis is on the representation type of finite-dimensional algebras. Topics covered include almost split sequences, the theory of tubes, tilting functors, hammocks, and triangulated categories. There are also papers on the representation type of local rings of singularities, and on recent results in the modular representation theory of finite groups.

Proceedings of groups, St Andrews 1985. — Edited by E. F. Robertson and C. M. Campbell. — London Mathematical Society lecture note series, vol. 121. — Un vol. broché, $15 \times 22,5$, de viii, 357 p. — Prix: £20.00. — Cambridge University Press, Cambridge, 1986.

This book provides a comprehensive picture of current progress and research in group theory. Five leading group theorists, Bachmuth, Baumslag, Neumann, Roseblade and Tits have presented survey articles based on short lecture courses given at the conference and the rest of the book comprises both survey and research articles contributed by other conference speakers.

E. C. TITCHMARSH. — **The theory of the Riemann zeta-function.** — 2nd edition revised by D. R. Heath-Brown. — Un vol. broché, $15,5 \times 23,5$, de x, 412 p. — Prix: £25.00. — Clarendon Press, Oxford, 1986.

The interest of number theory has its origins in the interplay between the additive and multiplicative structure of the integers. The Riemann zeta-function embodies these two structures in a single function, which can be investigated by the methods of analysis. Moreover the function has a rich and challenging theory of its own, with the famous Riemann hypothesis (still unsolved). This volume studies all aspects of the theory. In this 2nd edition, copious end-of-chapter notes describing the work of the last 40 years have been included.

Science and computers: a volume dedicated to Nicholas Metropolis. — Edited by Gian-Carlo Rota. — Advances in mathematics supplementary studies, vol. 10. — Un vol. relié, $16 \times 23,5$, de xi, 361 p. — Prix: \$79.00. — Academic Press, Orlando, 1986.

This volume of Advances in mathematics supplementary studies includes 17 research papers by O. A. Ladyzhenskaya and N. N. Ural'ceva. — S. A. Orszag. — Y. Shimamoto. — E. V. Krishnamurthy. — A. P. Ershov. — C. M. Brauner and B. Nicolaenko. — G. I. Marchuk and Yu A. Kuznetsov. — P. R. Stein. — R. D. Richtmyer. — M. Barnabei, A. Brini and G. Nicoletti. — D. Hawkins. — L. M. Libby and W. F. Libby. — C. J. Everett and E. D. Cashwell. — J. D. Louck and L. C. Biedenharn. — J. Todd. — C. M. Bender, G. S. Guralnik and D. H. Sharp. — C. L. Liu.

Martin SCHECHTER. — **Spectra of partial differential operators.** — North-Holland series in applied mathematics and mechanics, vol. 14. — 2nd edition. — Un vol. relié, 16×23 , de xiv, 310 p. — Prix: Dfl. 160.00. — North-Holland, Amsterdam, 1986.

The volume examines the general theory for constant coefficient operators, elliptic operators, the L^2 -theory for operators bounded from below, and self-adjoint operators. A

comprehensive theory for second order operators is given, and applied to quantum mechanical systems of particles. New material, improvements and recent advances have been added to this second revised edition.

Large scale eigenvalue problems. — Proceedings of the IBM Europe Institute Workshop on Large Scale Eigenvalue Problems held in Oberlech, Austria, July 8-12, 1985. — Edited by Jane Cullum and Ralph A. Willoughby. — North-Holland mathematics studies, vol. 127. — Un vol. relié, $16,5 \times 24$, de VIII, 330 p. — Prix: Dfl. 140.00. — North-Holland, Amsterdam, 1986.

The papers included in this volume fall into four principal categories: Novel algorithms for solving large eigenvalue problems; the use of novel computer architectures, vector and parallel; computationally-relevant theoretical analyses; science and engineering problems where large scale eigenelement computations have provided new insight.

Fermat days 85: mathematics for optimization. — Edited by J.-B. Hiriart-Urruty. — North-Holland mathematics studies, vol. 129. — Un vol. broché, $16,5 \times 24$, de XIV, 320 p. — Prix: Dfl. 150.00. — North-Holland, Amsterdam, 1986.

Optimization, as examined here, ranges from differential equations to problems arising in mechanics and statistics. The main topics covered are: calculations of variations and nonlinear elasticity, optimal control, analysis and optimization in problems dealing with nondifferentiable data, duality techniques, algorithms in mathematical programming and optimal control.

José G. LLAVONA. — **Approximation of continuously differentiable functions.** — North-Holland mathematics studies, vol. 130. — Notas de matematica, vol. 112. — Un vol. broché, $16,5 \times 24$, de XIV, 242 p. — Prix: Dfl. 120.00. — North-Holland, Amsterdam, 1986.

The book covers such results as: the extension of Wells' theorem and Aron's theorem for the fine topology of order m , extension of Bernstein's and Weierstrass' theorems for infinite dimensional Banach spaces, extension of Nachbin's and Whitney's theorem for infinite dimensional Banach spaces, automatic continuity of homomorphisms in algebras of continuously differentiable functions, etc.

Branko GRUENBAUM, G. C. SHEPARD. — **Tilings and patterns.** — Un vol. broché, 21×24 , de IX, 700 p. — Prix: £54.95. — W. H. Freeman, New York, 1987.

The authors focus on classification and enumeration of tilings and provide detailed surveys of coloring problems, tilings by polygons, and tilings by topologically unusual tiles. They also present the first complete coverage of aperiodic tilings. The book is an attractive source of information and examples for artists engineers, mathematicians, designers, psychologists interested in pattern theory, crystallographers, chemists, physicists... etc.

L. L. IVANOV. — **Algebraic recursion theory.** — Mathematics and its applications. — Un vol. relié, 18×25 , de 256 p. — Prix: £37.50. — Ellis Horwood, Chichester; Halsted Press, a division of John Wiley & Sons, New York, 1986.

This work is a comprehensive introduction to an intrinsic algebraic-axiomatic study of recursion theory, a branch of mathematical logic with applications in computer science. The mathematical core of the work is the theory of a specially-designed algebraic system, operative space, which relates to effective compatibility as groups relate to symmetry.

Optimal control of partial differential equations II: theory and applications. — Ed. by K. H. Hoffmann and W. Krabs. — International series of numerical mathematics, vol. 78. — Un vol. relié, 17×24 , de 234 p. — Prix: SFr. 68.00. — Birkhäuser, Basel, 1987.

This volume contains the contributions to the conference held at the Oberwolfach Mathematisches Forschungsinstitut, May 18-24, 1986. It offers to mathematicians as well as to scientists from applied fields, insight into new developments in optimal control theory which are relevant for practical applications.

E. J. SNELL. — **Applied statistics: a handbook of BMDP analyses.** — A complement to "Applied statistics: principles and examples" by D. R. Cox and E. J. Snell. — Un vol. broché, 16×23 , de IX, 171 p. — Prix: £7.95. — Chapman & Hall, London, 1987.

This handbook gives instructions for using programs in the BMDP statistical software package to analyse the examples discussed in "Applied statistics: principles and examples" (Cox & Snell). The statistical techniques employed range from simple descriptive methods to the fitting of relatively complicated models.

Rolf-Peter HOLZAPFEL. — **Geometry and arithmetic around Euler partial differential equations.** — Mathematics and its applications (East European series). — Un vol. relié, 16×23 , de 184 p. — Prix: Dfl. 98.00/US\$ 34.50/£27.25. — D. Reidel, Dordrecht, 1986.

This volume is concerned with the algebraic deformation of plane curve families involving systems of partial differential equations of the Euler-Picard type and their solutions. Both the results and the methods cover several areas of mathematics: algebraic geometry, automorphic form theory, monodromy groups of differential equations, equivalent K -theory and number theory.

D. J. H. GARLING. — **A course in Galois theory.** — Un vol. broché, 15×23 , de VIII, 167 p. — Prix: £8.95/US\$ 14.95 (relié: £22.50/US\$ 39.50). — Cambridge University Press, Cambridge, 1986.

This textbook, based on lectures given over a period of years at the University of Cambridge, begins with an elementary discussion of groups, fields and vector spaces, and then continues through such topics as rings, extension fields, ruler-and compass constructions, to automorphisms and the Galois correspondence. In the final chapters, topics such as transcendence and the calculation of Galois groups are discussed. Over 200 exercises are included.

M. C. Escher: art and science. — Proceedings of the International congress on M. C. Escher, Rome, Italy, 26-28 March, 1985. — Ed. by H. S. M. Coxeter, M. Emmer, R. Penrose, M. L. Teuber. — Un vol. relié, 20×27 , de XIII, 402 p. — Prix: US\$ 50.00/Dfl. 140.00. — North-Holland, Amsterdam, 1986.

The work of Dutch artist Maurits Cornelis Escher (1898-1972) continues to attract wide interest. Mathematicians, physicists, crystallographers, chemists, biologists, psychologists, psychiatrists, art historians, and specialists in computer graphics and visual communications attended this congress. The papers presented confirm that Escher's works are not only good examples of the visualization of scientific problems but also stimulate real scientific research.

S. J. L. van EIJNDHOVEN: J. de GRAAF. — **A mathematical introduction to Dirac's formalism.** — North-Holland mathematical library, vol. 36. — Un vol. relié, $15,5 \times 23$, de xv, 430 p. — Prix: US\$ 68.00/Dfl. 170.00. — North-Holland, Amsterdam, 1986.

This monograph contains a functional analytic introduction to Dirac's formalism. The first part presents some new mathematical notions in the setting of triples of Hilbert spaces, mentioning the concept of Dirac basis. The second part introduces a conceptually new theory of generalized functions, integrating the notions of the first part.

Mathematics and computer science II. — Fundamental contributions in the Netherlands since 1945. — Ed. by M. Hazewinkel, J. K. Lenstra, L. G. L. T. Meertens. — CWI monographs, vol. 4. — Un vol. relié, 17 × 25, de ix, 161 p. — Prix: US\$40.00/Dfl. 100.00. — North-Holland, Amsterdam, 1986.

These papers were presented at a symposium marking the 40th anniversary of the Amsterdam Mathematical Centre. The book is the 4th in a series from the CWI, the research institute of the Mathematical Centre, which was founded with the idea of using problems arising in the application of mathematical methods to practical problems as a source of inspiration.

Peter J. OLVER. — **Applications of Lie groups to differential equations.** — Graduate texts in mathematics, vol. 107. — Un vol. relié, 16 × 24, de xxvi, 497 p. — Prix: DM 158.00. — Springer-Verlag, New York, 1986.

Symmetry methods have long been recognized to be of great importance for the study of the differential equations arising in mathematics, physics and many other disciplines. The purpose of this book is to provide a solid introduction to those applications of Lie groups to differential equations which have proved to be useful in practice.

Foliations. — Proceedings of a symposium held at University of Tokyo from July 14 until July 18, 1983. — Ed. by I. Tamura. — Advanced studies in pure mathematics, vol. 5. — Un vol. relié, 15,5 × 24, de ii, 481 p. — Prix: US\$111.00/Dfl. 300.00. — North-Holland, Amsterdam, 1986.

The papers presented discuss various aspects of the topology of foliations: foliations and C^* -algebras, characteristic classes and cobordisms of foliations, dynamical study of transverse foliations, stability and topology of leaves, and germs of foliations.

Automorphic forms and number theory. — Proceedings of a symposium held at Tohoku University from November 7 until November 11, 1983. — Ed. by I. Satake. — Advanced studies in pure mathematics, vol. 7. — Un vol. relié, 15,5 × 24, de 386 p. — Prix: US\$96.25/Dfl. 260.00. — North-Holland, Amsterdam, 1986.

Original research into number theory and various automorphic forms is collected in this 7th volume of the Japanese symposia series. Most of the lectures given at the symposium are featured, along with 4 research papers submitted later.

H. BRUNNER: P. J. VAN DER HOUWEN. — **The numerical solution of Volterra equations.** — CWI monograph, vol. 3. — Un vol. relié, 17,5 × 24,5, de xvi, 588 p. — Prix: US\$55.00/Dfl. 150.00. — North-Holland, Amsterdam, 1986.

This monograph presents the theory of modern numerical analysis of Volterra integral and integro-differential equations. After an introduction to the theory of Volterra methods and to numerical integration, it covers linear methods and Runge-Kutta methods, collocation methods based on polynomial spline functions, stability of numerical methods, and it surveys computer programs for Volterra integral and integro-differential equations.

Equadiff 6. — Proceedings of the International Conference on Differential Equations and their Applications held in Brno, Czechoslovakia, Aug. 26-30, 1985. — Ed. by J. Vosmansky and M. Zlamal. — Lecture notes in mathematics, vol. 1192. — Un vol. broché, 16,5 × 24, de xxiii, 404 p. — Prix: DM 65.00. — Springer-Verlag, Berlin, 1986.

The 6th Czechoslovak Conference on Differential Equations revolved around differential equations in the broad sense. The main goal was to stimulate cooperation among various

branches in differential equations and to provide the opportunity for exchange of information on their solution as well as applications.

Global analysis — studies and applications II. — Ed. by Yu. G. Borisovich and Yu. E. Gliklikh. — Lecture notes in mathematics, vol. 1214. — Un vol. broché, 16,5 × 24, de v, 275 p. — Prix: DM 42.50. — Springer-Verlag, Berlin, 1986.

This volume, a sequel to volume 1108 of the Lecture Notes, presents a further selection of articles, in English translation, from the Voronezh University Press series in Global Analysis. This time, they center on the topics of applications of topology to contemporary analysis and analysis on manifolds and differential equations.

Jacob KOGAN. — **Bifurcation of extremals in optimal control.** — Lecture notes in mathematics, vol. 1216. — Un vol. broché, 16,5 × 24, de VIII, 106 p. — Prix: DM 23.00. — Springer-Verlag, Berlin, 1986.

The question of intersection of extremals has been considered in the calculus of variations under a sufficiency criterion, which enables one to derive the famous Jacobi necessary condition which guarantees the absence of conjugate points, namely the points of intersection of neighboring extremals. It is shown in this volume that in optimal control conjugate points exist even under a natural generalization of the sufficiency criterion of the calculus of variations.

Schrödinger operators, Aarhus 1985. — Lectures given in Aarhus, October 2-4, 1985. — Ed. by E. Balslev. — Lecture notes in mathematics, vol. 1218. — Un vol. broché, 16,5 × 24, de v, 222 p. — Prix: DM 35.00. — Springer-Verlag, Berlin, 1986.

The lectures given at this small-scale symposium on Schrödinger operators cover a wide range of topics mainly in spectral and scattering theory.

Rainer WEISSAUER. — **Stabile Modulformen und Eisenstein reihen.** — Lecture notes in mathematics, vol. 1219. — Un vol. broché, 16,5 × 24, de III, 147 p. — Prix: DM 23.00. — Springer-Verlag, Berlin, 1986.

This volume centers on an analysis of the interplay between two different kinds of classically studied and well-known modular forms, namely theta series and Eisenstein series. Their common relations to the Siegel-theta-operator give rise to results which could be considered as generalisations of Siegel's theorems on quadratic forms.

Séminaire d'algèbre Paul Dubreil et Marie-Paule Malliavin. — Proceedings, Paris 1985 (37^e année). — Ed. par M.-P. Malliavin. — Lecture notes in mathematics, vol. 1220. — Un vol. broché, 16,5 × 24, de IV, 200 p. — Prix: DM 35.00. — Springer-Verlag, Berlin, 1986.

The 37th session of the Séminaire d'algèbre sought to stimulate the development and exchange of ideas in the areas of ring theory, combinatorics, invariant theory, and representation theory.

Probability and Banach spaces. — Proceedings of a conference held in Zaragoza, Spain, June 17-21, 1985. — Ed. by J. Bastero and M. San Miguel. — Lecture notes in mathematics, vol. 1221. — Un vol. broché, 16,5 × 24, de XI, 222 p. — Prix: DM 35.00. — Springer-Verlag, Berlin, 1986.

The articles included in this proceedings volume are concerned with the interaction of probability and Banach space theory. They are original research papers.

Anatole KATOK, Jean-Marie STRELCYN. — With the collaboration of F. Ledrappier and F. Przytycki. — **Invariant manifolds, entropy and billiards; smooth maps with singularities.** — Lecture notes in mathematics, vol. 1222. — Un vol. broché, 16,5 × 24, de VIII, 283 p. — Prix: DM 42.50. — Springer-Verlag, Berlin, 1986.

This book gives an extension of the classical theory of local hyperbolic behavior of smooth dynamical systems (Pesin theory) to the smooth maps with singularities. In particular, the described theory applies to a very large class of billiards.

Differential equations in Banach spaces. — Proceedings of a conference held in Bologna, July 2-5, 1985. — Ed. by A. Favini and E. Obrecht. — Lecture notes in mathematics, vol. 1223. — Un vol. broché, 16,5 × 24, de VIII, 299 p. — Prix: DM 50.00. — Springer-Verlag, Berlin, 1986.

This volume contains 26 research papers covering regular and singular evolution equations both linear and nonlinear of parabolic and hyperbolic type, integro-differential equations, semi-group theory, control theory, wave equation, transmutation methods and Fuchsian differential equations.

Henry HELSON. — **The spectral theorem.** — Lecture notes in mathematics, vol. 1227. — Un vol. broché, 16,5 × 24, de VI, 104 p. — Prix: DM 23.00. — Springer-Verlag, Berlin, 1986.

The book presents the multiplicity theory of a spectral measure on a countably generated measurable space, acting in separable Hilbert space. Afterwards, the spectral theorem itself is proved in several versions.

J. A. JOHN. — **Cyclic designs.** — Monographs on statistics and applied probability. — Un vol. relié, 14 × 22, de X, 232 p. — Prix: £16.00. — Chapman and Hall, London, 1987.

This book is concerned with modern developments in block designs which to a large extent, have been brought about by the general availability of computers. In recent years families of designs with relatively simple methods of construction have been studied: these methods are invariably cyclical in nature. Many of the traditional designs continue to be practically important, and are consequently discussed also.

Elliott MENDELSON. — **Introduction to mathematical logic.** — Third edition. — The Wadsworth & Brooks/Cole mathematics series. — Un vol. relié, 17 × 24, de IX, 341 p. — Prix: \$38.95. — Wadsworth & Brooks/Cole Advanced Books & Software, Monterey, Cal., 1987.

This introduction to some of the principal topics of mathematical logic can be read with ease by anyone with some experience in abstract mathematical thinking. — *Contents:* The propositional calculus. Quantification theory. Formal number theory. Axiomatic set theory. Effective computability.

Rudolf ZURMUEHL; Sigurd FALK. — **Matrizen und ihre Anwendungen für Angewandte Mathematiker, Physiker und Ingenieure. Teil 2: Numerische Methoden.** — 5., überarb. und erw. Aufl. — Un vol. relié, 16 × 24, de XV, 476 p. — Prix: DM 118.00. — Springer-Verlag, Berlin, 1986.

Der Teil 2 dieses Standardwerkes behandelt die numerischen Methoden und deren Anwendung in den Ingenieurwissenschaften. Das Buch stellt damit eines der umfassendsten und modernsten Werke auf dem Gebiet der Numerischen Methoden der linearen Algebra dar.

Mathématiques au fil des âges. — Textes choisis et commentés par Jean Dhombres, Amy Dahan-Dalmedico, Rudolf Bkouche, Christian Houzel et Michel Guillemot. — Un vol. relié, 16 × 25, de XI, 327 p. — Prix: FF 150.00. — Gauthier-Villars, Paris, 1987.

Fruit du travail de plus de 30 auteurs, ce livre a été réalisé avec la collaboration des IREM (Instituts de Recherche sur l'Enseignement des Mathématiques). Le groupe Epistémologie et Histoire fonctionne en leur sein depuis plus de dix ans, réunissant des enseignants des collèges, des lycées, des universités et des chercheurs du CNRS. Ce recueil de grands textes mathématiques et l'appareil critique qui le complète — commentaires, repères chronologiques, index biographique — font de cet ouvrage un outil de travail intéressant pour les enseignants désireux d'illustrer et d'animer leurs cours.

Ian STEWART. — **The problems of mathematics.** — Un vol. relié, 14,5 × 22,5, de 258 p. — Prix: £17.50 (relié), £5.95 (broché). Oxford University Press, Oxford, 1987.

Mathematics is viewed by many people as a static, completed subject. The author shows that this is far from the truth. In describing many of the central problems of the subject — where they came from and how they are solved — he demonstrates how rapid the growth of modern mathematics has been and initiates the novice into the mysteries of the more recent theories (catastrophes, chaos, etc.)

Jean-Claude PONT. — **L'aventure des parallèles: histoire de la géométrie non euclidienne: précurseurs et attardés.** — Un vol. broché, 15 × 21, de 736 p. — Prix: SFr. 121.00. — Verlag Peter Lang, Bern, 1986.

La géométrie non euclidienne est le lieu où la géométrie divorce d'avec l'Espace, un lieu où se construisent des espaces nouveaux, ceux de la physique moderne et ceux des mathématiciens du XX^e siècle. Bousculant si fort le monde des idées reçues, la créature non euclidienne suscitera de l'intelligentsia des réactions de défense. Ce livre est la première étude d'ensemble consacrée à ce sujet, et il donne à comprendre l'essentiel des tentatives conduites durant deux millénaires pour vaincre le problème posé par le postulat d'Euclide sur les parallèles.

Michel MINOUX, Georges BARTNIK. — **Graphes, algorithmes, logiciels.** — Collection «Dunod informatique». — Un vol. broché, 15,5 × 24, de XVIII, 428 p. — Prix: FF 370.00. — Dunod, Paris, 1986.

Cet ouvrage traite de la résolution de problèmes sur les graphes du point de vue algorithmique, c'est-à-dire de tout ce qui touche à la conception et à la réalisation d'algorithmes performants. D'autre part, il offre un vaste recueil de logiciels «prêts à l'emploi». Loin de se réduire à un catalogue de logiciels, ce livre a été conçu comme un outil pédagogique dans le domaine de l'algorithme.

A. T. FOMENKO, D. B. FUCHS, and V. L. GUTENMACHER. — **Homotopic topology.** — Un vol. relié, 17,5 × 24,5, de 310 p. — Prix: \$33.00. — Akadémiai Kiado, Budapest, 1986.

This text-book deals with most simple definition as well as complicated notions such as cohomological operations and the Adams spectral sequence. The volume is based on the author's lectures, which is reflected in its informality. A. T. Fomenko, well-known also as a graphic artist, drew a series of pictures especially for this book to guide the reader.

Jonathan M. BORWEIN, Peter B. BORWEIN. — **Pi and the AGM: a study in analytic number theory and computational complexity.** — Canadian Mathematical Society series of monographs

and advanced texts. — Un vol. relié, 17×24 , de xv, 414 p. — Prix: £48.00. — John Wiley and Sons, New York, 1987.

A central thread of this book is the arithmetic-geometric mean iteration of Gauss, Lagrange, and Legendre. A second thread is the calculation of π . The two threads are intimately interwoven and provide a remarkable example of the application to twentieth-century computational concerns of the type of nineteenth-century analysis whose neglect Felix Klein so deplores.

V. S. SUNDER. — **An invitation to von Neumann algebras.** — Universitext. — Un vol. broché, $15,5 \times 23,5$, de xiv, 171 p. — Prix: DM 68.00. — Springer-Verlag, Berlin, 1987.

The theory of von Neumann algebras has been growing rapidly over the last 20 years. It is beginning to make contact with areas such as differential geometry and K -theory. Topics covered are: Murray-von Neumann classification of factors, basic modular theory, Connes classification of type III factors, crossed products.

I. GOHBERG, P. LANCASTER, I. RODMAN. — **Invariant subspaces of matrices with applications.** — Canadian Mathematical Society series of monographs and advanced texts. — Un vol. relié, $16,5 \times 24$, de xv, 692 p. — Prix: £58.00. — John Wiley, New York, Chichester, 1986.

This is a book in advanced linear algebra in which invariant subspaces are the central notion and the main tool. It contains a comprehensive treatment of geometrical, algebraic, topological and analytical properties of invariant subspaces. As well, an important part of the work consists of applications to matrix polynomials, rational matrix functions, linear systems, and matrix quadratic equations.

Olli LEHTO. — **Univalent functions and Teichmüller spaces.** — Graduate texts in mathematics, vol. 109. — Un vol. relié, $16,5 \times 24,5$, de xii, 257 p. — Prix: DM 124.00. — Springer-Verlag, New York, 1987.

This book treats the theory of Teichmüller spaces, viewing it as a part of classical complex analysis. The main emphasis of the book consists of developing ideas of Bers: they provide an approach to Teichmüller theory which applies to the case of compact and non-compact Riemann surfaces.

Dale HUSEMÖLLER. — **Elliptic curves.** — With an appendix by Ruth Lawrence. — Graduate texts in mathematics, vol. 111. — Un vol. relié, 16×24 , de xv, 350 p. — Prix: DM 110.00. — Springer-Verlag, New York, 1987.

This book surveys the theory of elliptic curves, concentrating on arithmetic properties. Topics discussed are: the Mordell-Weil theorem, descent, connections with theta functions and modular forms, as well as many other advanced topics such as L -functions, l -adic cohomology, and the conjecture of Birch and Swinnerton-Dyer.

Riaz A. USMANI. — **Applied linear algebra.** — Monographs and textbooks in pure and applied mathematics, vol. 105. — Un vol. relié, $15,5 \times 23,5$, de vi, 258 p. — Prix: US\$39.75 (US and Canada) \$47.50 (all other countries). — Marcel Dekker, New York, 1987.

This text begins with a review of linear vector spaces and basic matrix theory. It then covers the concept of generalized inverses of a matrix and their applications, linear transformations and their representation by matrices, the matrix eigenvalue problem, applications of functions of a square matrix and the theory of irreducible and monotone matrices.

Michael SHUB. — **Global stability of dynamical systems.** — With the collaboration of Albert Fathi and Remi Langevin. — Translated from the French by Joseph Christy. — Un vol. relié, 16 × 24, de XII, 150 p. — Prix: DM 74.00. — Springer-Verlag, New York, 1987.

This is an advanced text on the global theory of dynamical systems, including the stable and center manifold theorems, the stability of uniformly hyperbolic sets, Smale's axiom *A*, spectral decomposition, and omega-stability theorems. For some of these topics, this is the first complete treatment in book form.

V. I. OVCHINNIKOV. — **The methods of orbits in interpolation theory.** — Edited by Jaak Peetre. — Mathematical reports, vol. 1, part 2. — Un vol. broché, 13 × 21,5, de IX, 166 p. — Prix: \$34.00. — Harwood Academic Publishers, Chur/London/New York, 1984.

In recent years there has been considerable progress in the general theory of interpolation of linear operators. This progress is largely based on a new method for constructing and investigating interpolation spaces, which may be called the methods of orbits. The purpose of this survey is to outline the main ideas and principal results of this method.

Sheldon M. ROSS. — **Initiation aux probabilités.** — Traduit de l'américain par Christian Hofer. — Un vol. broché, 16 × 24, de XI, 390 p. — Prix: SFr. 69.00. — Presses polytechniques romandes, Lausanne, 1987.

La notion de probabilité conditionnelle est traitée de façon plus rigoureuse dans cet ouvrage que dans des textes comparables. Une attention particulière est accordée aux théorèmes limites, noyau essentiel de tout traitement sérieux des probabilités. L'auteur s'attache tout particulièrement à illustrer les notions théoriques par des exemples concrets. Au total, le livre contient plus de 700 exemples et exercices.

J. ACZEL. — **A short course on functional equations based upon recent application to the social and behavioral sciences.** — Theory and decision library, ser. B: Mathematical and statistical methods. — Un vol. relié, 16 × 23, de VI, 169 p. — Prix: Dfl. 108.00. — D. Reidel Publishing Co., Dordrecht, 1987.

There recently has been significant progress in the field of functional equations. Many of the newer applications have been in the behavioral and social sciences. Reversing the usual procedure, the author uses such applications to introduce the reader to this important and rapidly-developing branch of mathematics.

Julij A. DUBINSKIJ. — **Sobolev spaces of infinite order and differential equations.** — Mathematics and its applications (East European series). — Un vol. relié, 16 × 23, de 161 p. — Prix: Dfl. 98.00. — D. Reidel Publishing Co., Dordrecht, 1986.

This book is devoted to boundary value problems of infinite order and the corresponding Sobolev spaces. *Contents:* Nontriviality of Sobolev spaces of infinite order. — Elliptic boundary value problems of infinite order. — Trace theory and inhomogeneous Dirichlet problem of infinite order. — Imbedding theory. — Nonstationary boundary value problems of infinite order.

Horst HERRLICH. — **Topologie I: Topologische Räume.** — Unter Mitarbeit von H. Bargenda. — Berliner Studienreihe zur mathematik, Bd. 2. — Un vol. broché, 17 × 24, de VII, 314 p. — Prix: DM 48.00. — Heldermann Verlag, Berlin, 1986.

Das vorliegende Buch ist konzipiert als ein Kurs zum Selbststudium der allgemeinen Topologie, versehen mit zahlreichen Studierhinweisen, Beispielen und Aufgaben, einem ausführlichen Index und Zusammenfassungen der einzelnen Kapitel in Form übersichtlicher Glossare. Es eignet sich jedoch auch als Grundlage oder Begleitmaterial für eine Vorlesung oder ein Seminar.

OTTO BACHMANN. — **Exercices avec solutions: complément aux «Méthodes mathématiques pour l'ingénieur»**. — Méthodes mathématiques pour l'ingénieur, vol. 5. — Un vol. broché, 16×24 , de IX, 160 p. — Prix: SFr. 25.00. — Presses polytechniques romandes, Lausanne, 1986.

Ce recueil d'exercices a pour objectif d'apprendre au lecteur à appliquer les méthodes et résultats de la théorie exposée dans les trois premiers volumes des «Méthodes mathématiques pour l'ingénieur». La plupart des problèmes sont accompagnés par des solutions détaillées. Ils sont suivis d'exercices supplémentaires auxquels sont données les réponses et, si nécessaire, des indications sommaires pour les résoudre.

Thomas BETH, Dieter JUNGnickel, Hanfried LENZ. — **Design theory**. — Un vol. relié, $14,5 \times 21,5$, de 688 p. — Prix: £50.00/\$79.50. — Cambridge University Press, Cambridge, 1986.

This book is a comprehensive treatment of the theory of combinatorial designs. The reader is expected to be familiar with basic algebra but otherwise the work is self-contained. Applications of design theory in communications engineering, computer science and optimization are also mentioned. Exercises are included throughout.

Hans-Jürgen SCHMEISSER, Hans TRIEBEL. — **Topics in Fourier analysis and function spaces**. — Un vol. relié, 16×24 , de 300 p. — Prix: £23.95. — John Wiley, Chichester, 1987.

This is a book dealing with several classes of Besov-Hardy-Sobolev function spaces on the Euclidean n -space and the n -torus. Periodic, weighted and anisotropic spaces are discussed, as well as spaces in which properties of dominating mixed smoothness predominate. In the 1st and last chapters, related spaces of entire analytic functions and abstract spaces are considered.

Stephen PARROTT. — **Relativistic electrodynamics and differential geometry**. — Un vol. relié, 18×26 , de XI, 308 p. — Prix: DM 110.00. — Springer-Verlag, New York, 1987.

This exposition of the logical structure of classical relativistic electrodynamics is written in the language and spirit of coordinate-free differential geometry. The intended audience is primarily mathematicians who want an account of the foundations of electrodynamics written in language which they are familiar with and secondarily physicists interested in a differential-geometric viewpoint of an important subject of theoretical physics.

W. GREENBERG, C. VAN DER MEE, W. PROTOPODESCU. — **Boundary value problems in abstract kinetic theory**. — Operator theory: advances and applications, vol. 23. — Un vol. relié, 17×24 , de X, 524 p. — Prix: SFr. 120.00. — Birkhäuser Verlag, Basel, 1987.

This monograph presents a rigorous exposition of boundary value problems related to kinetic equations. The latter are of fundamental importance in describing the transport of mass and energy in many areas of physics, chemistry, biology and engineering, and in modeling phenomena from areas such as economics, sociology and informatics.

D. W. JORDAN, P. SMITH. — **Nonlinear ordinary differential equations.** — Oxford applied mathematics and computing science series. — Un vol. broché, $14 \times 21,5$, de ix, 381 p. — Prix: £14.50 (broché), £27.50 (relié). — Clarendon Press, Oxford, 1987.

This revised edition treats recent developments and subjects such as singular perturbations and the phenomena associated with forced nonlinear equations. Topics also include the phase plane, linear approximation, nonlinear damping, geometrical and computational aspects, small-parameter expansions and singular perturbations, etc.

Group representations, ergodic theory, operator algebras, and mathematical physics. — Proceedings of a conference in honor of George W. Mackey. — Ed. by C. C. Moore. — Mathematical Sciences Research Institute Publications, vol. 6. — Un vol. relié, 16×24 , de 278 p. — Prix: DM 64.00. — Springer-Verlag, New York, 1987.

The diversity of the contributions to this volume dedicated to George W. Mackey reflects the wide range of interests that have characterized Mackey's work. Included are articles on unitary representation, discrete groups, ergodic theory, operator algebras, and mathematical physics.

Gabor J. SZEKELY. — **Paradoxes in probability theory and mathematical statistics.** — Mathematics and its applications (East European series). — Un vol. relié, $15,5 \times 23$, de xii, 250 p. — Prix: Dfl. 135.00. — D. Reidel Publishing Co., Dordrecht, 1987.

The mathematics of random phenomena has revealed many interesting paradoxes. Most monographs on probability theory and mathematical statistics contain only a few classical paradoxes. This book presents a more complete collection and shows how the mathematical methods of random phenomena have developed from such paradoxes.

Serge LANG. — **Undergraduate algebra.** — Undergraduate texts in mathematics. — Un vol. relié, 16×24 , de ix, 256 p. — Prix: DM 84.00. — Springer-Verlag, New York, 1987.

This text for undergraduate algebra students concentrates on the basic structures and results of algebra, discussing groups, rings, modules, fields, Galois theory, and other topics. Throughout the book, the author has attempted to strike a balance between abstraction and concrete results, providing illustrative examples to reinforce the general theory.

N. M. J. WOODHOUSE. — **Introduction to analytical dynamics.** — Oxford science publications. — Un vol. broché, $15,5 \times 23,5$, de x, 169 p. — Prix: £9.95 (relié: £20.00). — Clarendon Press, Oxford, 1987.

This book is an introduction to Lagrangian and Hamiltonian mechanics primarily for mathematics undergraduates. Although the approach is traditional, and coordinate based, it incorporates some of the insights and new perspectives of modern geometric treatments of mechanics.

Low dimensional topology and Kleinian groups, Warwick and Durham, 1984. — Edited by D. B. A. Epstein. — London Mathematical Society lecture note series, vol. 112. — Un vol. broché, $15,5 \times 23$, de 321 p. — Prix: £17.50. — Cambridge University Press, Cambridge, 1986.

This volume is divided into three parts. The first contains an article by W. P. Thurston, with an accessible exposition of his important theory of earthquakes. R. Penner contributes an introduction to Thurston's theory of train-tracks. The second and the third parts consist of research papers. Some of them are related to the group theoretical aspects of Kleinian and Fuchsian groups.

Hideyuki MATSUMURA. — **Commutative ring theory.** — Cambridge studies in advanced mathematics, vol. 8. — Un vol. relié, 16 × 23,5, de XIII, 320 p. — Prix: £ 30.00. — Cambridge University Press, Cambridge, 1986.

This graduate textbook covers the basic material, including dimension theory, depth, Cohen-Macaulay rings, Gorenstein rings, Krull rings and valuation rings, but it is distinguished from other introductions by the coverage of advanced topics such as Ratliff's theorems on chains of prime ideals. Exercises are provided at the end of each chapter and, to some of them, solutions or hints are given.

C. B. THOMAS. — **Characteristic classes and the cohomology of finite groups.** — Cambridge studies in advanced mathematics, vol. 9. — Un vol. relié, 16 × 23,5, de XII, 129 p. — Prix: £ 17.50. — Cambridge University Press, Cambridge, 1986.

The purpose of this book is to study the relation between the representation ring of a finite group and its integral cohomology by means of characteristic classes. In this way it is possible to extend the known calculations and prove some general results for the integral cohomology ring of a group G of prime power order.

J. L. ALPERIN. — **Local representation theory: modular representations as an introduction to the local representation theory of finite groups.** — Cambridge studies in advanced mathematics, vol. 11. — Un vol. relié, 16 × 23,5, de x, 178 p. — Prix: £ 20.00. — Cambridge University Press, Cambridge, 1986.

This text presents some of the key results in the representation theory of finite groups. In order to keep the account reasonably elementary, the author has concentrated on local representation theory, emphasizing module theory throughout. In this way many deep results can be obtained rather quickly.

Michael ASCHBACHER. — **Finite group theory.** — Cambridge studies in advanced mathematics, vol. 10. — Un vol. relié, 16 × 23,5, de x, 274 p. — Prix: £ 22.50. — Cambridge University Press, Cambridge, 1986.

In this book are developed the foundations of the theory of finite groups. Unifying themes include the classification theorem, and the classical linear groups. Lie theory appears in chapters on Coxeter groups, root systems, buildings and Tits systems. There is a new proof of the solvable signalizer functor theorem and a brief outline of the proof of the classification theorem itself.

Daniel W. STROOCK. — **Lectures on stochastic analysis: diffusion theory.** — London Mathematical Society Student Texts, vol. 6. — Un vol. broché, 15 × 23, de ix, 128 p. — Prix: £ 6.50. — Cambridge University Press, Cambridge, 1987.

The central theme of this book is the theory of diffusions. In order to emphasize intuitive aspects of probabilistic techniques, diffusion theory is presented as a natural generalization of the flow generated by a vector field. Essential to the development of this idea is the introduction of martingales and the formulation of diffusion theory in terms of martingales.

J. V. FIELD, J. J. GRAY. — **The geometrical work of Girard Desargues.** — Un vol. relié, de 16 × 24, de x, 237 p. — Prix: DM 158.00. — Springer-Verlag, New York, 1987.

This is the first English translation of several of the works of G. Desargues. Included is his "Brouillon project" with which the modern study of projective geometry may be said to have begun; there is also an essay on sundials and the complete text of his 1636 piece on perspective.

Gareth A. JONES and David SINGERMAN. — **Complex functions: an algebraic and geometric viewpoint.** — Un vol. broché, 15 × 23, de XIV, 342 p. — Prix: £12.95 (relié: £40.00). — Cambridge University Press, Cambridge, 1987.

Elementary accounts of many aspects of classical complex function theory are given in this book, including Möbius transformations, elliptic functions, Riemann surfaces, Fuchsian groups and modular functions. Many other topics from mathematics have been incorporated into the text to give concrete applications.

M. CRAMPIN, F. A. E. PIRANI. — **Applicable differential geometry.** — London Mathematical Society Lecture Notes series, vol. 59. — Un vol. broché, 15 × 23, de 394 p. — Prix: £17.50. — Cambridge University Press, Cambridge, 1986.

This is an introduction to geometrical topics useful in applied mathematics and theoretical physics, including manifolds, metrics, connections, Lie groups, spinors and bundles, preparing the reader for the study of modern treatments of mechanics, gauge field theories, relativity and gravitation.

Analytical and geometric aspects of hyperbolic space: Warwick and Durham 1984. — Ed. by D. B. A. Epstein. — London Mathematical Society Lecture Note series, vol. 111. — Un vol. broché, 15 × 23, de IV, 323 p. — Prix: £15.00. — Cambridge University Press, Cambridge, 1987.

The general theme of these symposia held at the Universities of Warwick and Durham was the area relating low-dimensional topology, Kleinian groups and hyperbolic geometry. The book is divided into 2 parts: A) Geometric structures and hyperbolic geometry; B) Analytical aspects of Kleinian and Fuchsian groups.

Shigeo Sasaki: selected papers. — Ed. by Shun-ichi Tachibana. — Un vol. relié, 18,5 × 26,5, de 363 p. — Kinokuniya Company Ltd., Tokyo, 1985.

S. Sasaki has been known as the mathematician who introduced the notion of "Sasakian manifold", a class of contact manifolds which has served the study of Riemannian geometry in various ways. The volume consists of a collection of papers selected by Prof. Sasaki himself. Most of his papers on holonomy groups are contained.

Hans TRIEBEL. — **Analysis and mathematical physics.** — Mathematics and its applications (East European Series). — Un vol. relié, 15,5 × 22,5, de XXVIII, 456 p. — Prix: Dfl. 210.00. — D. Reidel Publishing Co., Dordrecht, 1986.

This textbook, in addition to providing an introduction to mathematics for physicists, also touches on mathematical physics. Topics introduced include: numbers and spaces, convergence and continuity, differential and integral calculus, differential equations, functions and power series, Banach spaces, variational methods, etc.
