

# Topologie des variétés, analyse globale et analyse des variétés

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based on approximation of spaces by polyhedra (ANRs) using the technique of inverse systems. It is intended for researchers and graduate students. Special care is devoted to motivation and bibliographic notes.

### ***Topologie des variétés, analyse globale et analyse des variétés***

Michèle AUDIN. — **Spinning tops: a course on integrable systems.** — Cambridge studies in advanced mathematics, vol. 51. — Un vol. broché, 15,5×23, de viii, 139 p. — ISBN 0-521-77919-7. — Prix: £15.95. — Cambridge University Press, Cambridge, 1999.

Since the time of Lagrange and Euler, it has been well known that an understanding of algebraic curves can illuminate the picture of rigid bodies provided by classical mechanics. A modern view of the role played by algebraic geometry has been established in recent years by many mathematicians. This book presents some of these modern techniques, which fall within the orbit of finite-dimensional integrable systems. The main body of the text presents a rich assortment of methods and ideas from algebraic geometry prompted by classical mechanics, whilst in appendices the general, abstract theory is described. The methods are given a topological application, for the first time in book form, to the study of Liouville tori and their bifurcations.

Károly BÖRÖCZKY, Jr., Walter NEUMANN, András STIPSICZ, (Editors). — **Low dimensional topology.** — Bolyai Society Mathematical Studies, vol. 8. — Un vol. relié, 17,5×24,5, de 413 p. — ISBN 963-8022-92-2. — János Bolyai Mathematical Society, Budapest, 1999.

This proceedings contains the notes of five lecture series delivered at the Summer School on Low Dimensional Topology, held August 3-14, 1998 in Budapest (Hungary), and at the EMS Summer Schools No. 1, Algebraic Geometry, held in 1996 in Eger (Hungary). *Contents:* M. Davis, G. Moussong: Notes on nonpositively curved polyhedra. — J.W. Morgan: Smooth invariants of 4-manifolds. — W.E. Neumann: Notes on geometry and 3-manifolds. — A. Némethi: Normal surface singularities. — A. Némethi: Some topological invariants of isolated hypersurface singularities.

Brian DAVIES, Yuri SAFAROV, (Editors). — **Spectral theory and geometry.** — ICMS Instructional Conference, Edinburgh 1998. — London Mathematical Society lecture note series, vol. 273. — Un vol. broché, 15,5×23, de xii, 328 p. — ISBN 0-521-77749-6. — Prix: £27.95. — Cambridge University Press, Cambridge, 1999.

This volume brings together lectures from an instructional meeting on spectral theory and geometry held under the auspices of the International Centre for Mathematical Sciences in Edinburgh. The contributions here come from world experts and many are much expanded versions of the lectures they gave; together they survey the core material and go beyond to describe deeper results. For graduate students and experts alike, this book will be a highly useful resource.

Tan LEI, (Editor). — **The Mandelbrot set, theme and variations.** — London Mathematical Society lecture note series, vol. 274. — Un vol. broché, 15×23, de xx, 365 p. — ISBN 0-521-77476-4. — Prix: £27.95. — Cambridge University Press, Cambridge, 2000.

This volume provides a systematic exposition of current knowledge about the Mandelbrot set and presents the latest research in complex dynamics. Topics discussed include the universality and the local connectivity of the Mandelbrot set, parabolic bifurcation, critical circle homeomorphisms, absolutely continuous invariant measures and matings of polynomials,

along with the geometry, dimension and local connectivity of Julia sets. In addition to presenting new work, this collection documents important results hitherto unpublished or difficult to find in the literature.

Gabriel P. PATERNAIN. — **Geodesic flows.** — Progress in mathematics, vol. 180. — Un vol. relié, 16×24, de XII, 149 p. — ISBN 0-8176-4144-0. — Prix: SFr. 88.00. — Birkhäuser, Boston, 1999.

The work begins with a concise introduction to the geodesic flow of a complete Riemannian manifold, emphasizing its symplectic properties and culminating with various applications, such as the non-existence of continuous invariant Lagrangian subbundles for manifolds with conjugate points. Subsequent chapters develop the relationship between the exponential growth rate of the average number of geodesic arcs between two points in the manifold and the topological entropy of the geodesic flow. A complete proof of Mané's formula relating these two quantities is presented. A final chapter explores the link between the topological entropy of the geodesic flow and the homology of the loop space of a manifold.

Nikolai SAVELIEV. — **Lectures on the topology of 3-manifolds: an introduction to the Casson invariant.** — De Gruyter textbook. — Un vol. broché, 17×24, de IX, 199 p. — ISBN 3-11-016271-7. — Prix: DM 59.00. — Walter de Gruyter, Berlin, 1999.

Progress in low-dimensional topology has been very fast in the last two decades, leading to the solutions of many difficult problems. One of the consequences of this "acceleration of history" is that many results have only appeared in professional journals and monographs. The purpose of this book is to provide a much-needed bridge to these modern topics. The book covers some classical topics, such as Heegaard splittings, Dehn surgery, and invariants of knots and links. It proceeds through the Kirby calculus and Rohlin's theorem to Casson's invariant and its applications, and gives a brief sketch of links with the latest developments in low-dimensional topology and gauge theory.

## ***Probabilités et processus stochastiques***

Richard M. DUDLEY. — **Uniform central limit theorems.** — Cambridge studies in advanced mathematics, vol. 63. — Un vol. relié, 16×24, de XIV, 436 p. — ISBN 0-521-46102-2. — Prix: £55.00. — Cambridge University Press, Cambridge, 1999.

This book shows how the central limit theorem for independent, identically distributed random variables with values in general, multidimensional spaces, holds uniformly over some large classes of functions. The book contains, with complete proofs, the Fernique-Talagrand majorizing measure theorem for Gaussian processes, an extended treatment of Vapnik-Černovenkis combinatorics, the Ossiander  $L^2$  bracketing central limit theorem, the Giné-Zinn bootstrap central limit theorem in probability, the Bronstein theorem on approximation of convex sets, and the Shor theorem on rates of convergence over lower layers. The book incorporates an updated form of the author's 1984 St.-Flour lecture notes and also gives various results of the author's not previously collected in one place.

Dominique FOATA, Aimé FUCHS. — **Wahrscheinlichkeitsrechnung.** — Grundstudium Mathematik. — Un vol. broché, 17×24, de XV, 383 p. — ISBN 3-7643-6169-7. — Prix: SFr. 42.00 (relié: SFr. 88.00). — Birkhäuser, Basel, 1999.

Die vorliegende Einführung richtet sich an Studenten, die bereits einen Grundkurs in Analysis besucht haben, und zeichnet sich durch einen hervorragenden didaktischen Aufbau aus. Sowohl die diskrete wie auch die masstheoretische Wahrscheinlichkeitstheorie werden in