Géométrie

Hans TRIEBEL. — **Fractals and spectra: related to Fourier analysis and function spaces.** — Monographs in mathematics, vol. 91. — Un vol. relié, 17,5×24, de VIII, 271 p. — ISBN 3-7643-5776-2. — Prix: SFr. 128.00. — Birkhäuser Verlag, Basel, 1997.

This book deals with the symbiotic relationship between the theory of function spaces, fractal geometry, and spectral theory of (fractal) pseudodifferential operators as it as emerged quite recently. Atomic and quarkonial (subatomic) decompositions in scalar and vector valued function spaces on the Euclidean n-space pave the way to study properties (compact embeddings, entropy numbers) of function spaces on and of fractals. On this basis, distributions of eigenvalues of fractal (pseudo)differential operators are investigated. Diverse versions of fractal drums are played.

Calcul des variations

Pablo PEDREGAL. — **Parametrized measures and variational principles.** — Progress in nonlinear differential equations and their applications, vol. 30. — Un vol. relié, 16×24, de VII, 212 p. — ISBN 3-7643-5697-9. — Prix: SFr. 88.00. — Birkhäuser Verlag, Basel, 1997.

The purpose of this book is to present a new approach to fundamental questions concerning the calculus of variations based on a systematic analysis of Young measures. Weak lower semicontinuity and relaxation are main areas of concentration in this work. The unified treatment of scalar and vector cases developed here is suitable also for more general situations. Applications to problems in continuum mechanics and nonlinear elasticity are analyzed in depth.

Géométrie

Albrecht BEUTELSPACHER, Ute ROSENBAUM. — **Projective geometry: from foundations to applications.** — Un vol. broché, 15×23, de X, 258 p. — ISBN 0-521-48364-6. — Prix: £45.00. — Cambridge University Press, Cambridge, 1998.

This book presents the foundations of classical projective and affine geometry as well as its important applications in coding theory and cryptography. It could also serve as a first introduction to diagram geometry. Written in clear and contemporary language with an entertaining style and around 200 exercises, examples and hints, this book is ideally suited for use either as a textbook to accompany courses or for self-study.

David GAY. — **Geometry by discovery.** — Un vol. relié, 19,5×24,5, de XIV, 410 p. — ISBN 0-471-04177-7. — Prix: £24.95. — John Wiley, New York, 1998.

This book is a new approach to geometry. This ground-breaking text taps the pedagogical value of discovery to help students stretch their geometric perspective and hone their geometric intuition. It actively engages students in solving mathematical problems, and empowers them to be successful problem-solvers and discoverers of mathematical ideas.

J.W.P. HIRSCHFELD. — **Projective geometries over finite fields.** — Second edition. — Oxford mathematical monographs. — Un vol. relié, 16,5×24, de XIV, 555 p. — ISBN 0-19-850295-8. — Prix: £65.00. — Clarendon Press, Oxford, 1998.

This is a completely revised edition of the 1979 work with the same title. The original intention that the book be fully self-contained has yielded to the need to include theorems that are intrinsic to the topics but want deeper background results. The prerequisites for reading this book

are still linear algebra, finite field theory, and projective geometry; despite the applicability, the reformulation of many results in terms of coding theory has been eschewed. But links with coding theory are described.

Silvio LEVY, (Editor). — **Flavors of geometry.** — Mathematical Sciences Research Institute publications, vol. 31. — Un vol. broché, 16×23,5, de IX, 194 p. — ISBN 0-521-62962-4. — Prix: £13.95 (relié: £37.50). — Cambridge University Press, Cambridge, 1997.

This book is a volume of lectures on four geometrically influenced fields of mathematics that have experienced great development in recent years. It presents chapters on hyperbolic geometry, dynamics in several complex variables, convex geometry, and volume estimation, by masters in their respective fields. Each lecture begins with a discussion of elementary concepts, examines the highlights of the field, and concludes with a look at more advanced material. The style and presentation of the chapters are clear and accessible, and most of the lectures are illustrated.

George E. MARTIN. — **Geometric constructions.** — Undergraduate texts in mathematics. — Un vol. relié, 16,5×24,5, de XI, 203 p. — ISBN 0-387-98276-0. — Prix: DM 69.00. — Springer, New York, 1998.

The first chapter of this book is informal and starts from scratch, introducing all the geometric constructions from high school that have been forgotten or were never seen. The second chapter formalizes Plato's game and examines problems from antiquity such as the impossible way of trisecting an arbitrary angle. After that, variations on Plato's theme are explored: using only a ruler, using only a compass, using toothpicks, using a ruler and dividers, using a marked rule, using a tomahawk, and ending with a chapter on geometric constructions by paperfolding.

Ensembles convexes et inégalités géométriques

W.A. COPPEL. — **Foundations of convex geometry.** — Australian Mathematical Society lecture series, vol. 12. — Un vol. broché, 15×23, de XIV, 222 p. — ISBN 0-521-63970-0. — Prix: £24.95. — Cambridge University Press, Cambridge, 1998.

This book on the foundations of Euclidean geometry aims to present the subject from the point of view of present day mathematics, taking advantage of all the developments since the appearance of Hilbert's classic work. Here real affine space is characterized by a small number of axioms involving points and line segments, making the treatment self-contained and thorough, many results being established under weaker hypotheses than usual.

Géométrie différentielle

Sorin DRAGOMIR, Liviu ORNEA. — **Locally conformal Kähler geometry.** — Progress in mathematics, vol. 155. — Un vol. relié. 16×25, de XI, 327 p. — ISBN 0-8176-4020-7. — Prix: SFr. 148.00. — Birkhäuser, Boston, 1998.

This monograph covers topics in complex geometry, an area of mathematical growth in recent years. The latest topics are addressed systematically, bringing us to the cutting edge in the mathematics of locally conformal Kähler (l.c.K.) manifold theory. This book is a differential geometric study of l.c.K. manifolds (i.e., manifolds carrying some l.c.K. metric) and their submanifolds. While the latest results on Vaisman's conjectures, spectral geometry of generalized Hopf manifolds, harmonic and holomorphic forms of l.c.K. manifolds, and pseudoharmonic maps of Hermitian surfaces are reviewed throughout mathematics literature, here they are presented in a systematic manner, and many specific examples are discussed from this wider perspective.