

Géométrie différentielle

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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, $16 \times 23,5$, 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, $16,5 \times 24,5$, 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.

Luther Pfahler EISENHART. — **Riemannian geometry.** — Princeton landmarks in mathematics and physics. — Eighth printing. — Un vol. broché, 15,5×23, de ix, 306 p. — ISBN 0-691-02353-0. — Prix: £ 14.95. — Princeton University Press, Princeton, 1997.

In this book, Eisenhart succinctly surveys the key concepts of Riemannian geometry. He begins with tensor analysis, including the Riemann curvature tensor, the Christoffel symbols, and the Ricci tensor. From here the notion of a metric is introduced, and hence geodesics, parallel displacement, and the Bianchi identity are explored. Other topics include orthogonal enuples, the geometry of subspaces, subspaces of a flat space, and groups of motions. This clear and concise guide to Riemannian geometry will be of great interest to mathematicians and theoretical physicists alike.

Theodore FRANKEL. — **The geometry of physics: an introduction.** — Un vol. relié, 19×26, de xxii, 654 p. — ISBN 0-521-38334-X. — Prix: £65.00. — Cambridge University Press, Cambridge, 1997.

This book is intended to provide a working knowledge of those parts of exterior differential forms, differential geometry, algebraic and differential topology, Lie groups, vector bundles, and Chern forms that are essential for a deeper understanding of both classical and modern physics and engineering. Included are discussions of analytical and fluid dynamics, electromagnetism (in flat and curved space), thermodynamics, the deformation tensors of elasticity, soap films, special and general relativity, the Dirac operator and spinors, and gauge fields, including Yang-Mills, the Aharonov-Bohm effect, Berry phase, and instanton winding numbers.

Christoph HUMMEL. — **Gromov's compactness theorem for pseudo-holomorphic curves.** — Progress in mathematics, vol. 151. — Un vol. relié, 16×24, de viii, 131 p. — ISBN 3-7643-5735-5. — Prix: SFr. 48.00. — Birkhäuser Verlag, Basel, 1997.

The aim of this book is to present the original proof of Gromov's compactness for pseudo-holomorphic curves in detail. Local properties of pseudo-holomorphic curves are investigated and proved from a geometric viewpoint. Properties of particular interest are isoperimetric inequalities, a monotonicity formula, gradient bounds and the removal of singularities. A special chapter is devoted to relevant features of hyperbolic surfaces, where pairs of pants decomposition and thick-thin decomposition are described.

John M. LEE. — **Riemannian manifolds: an introduction to curvature.** — Graduate texts in mathematics, vol. 176. — Un vol. relié, 16,5×24, de xv, 224 p. — ISBN 0-387-98271-X. — Prix: DM 118.00. — Springer, New York, 1997.

The book begins with a careful treatment of the machinery of metrics, connections, and geodesics, and then introduces the curvature tensor as a way of measuring whether a Riemannian manifold is locally equivalent to Euclidean space. Submanifold theory is developed next in order to give the curvature tensor a concrete quantitative interpretation. The remainder of the text is devoted to proving the four most fundamental theorems relating curvature and topology: the Gauss-Bonnet Theorem, the Cartan-Hadamard Theorem, Bonnet's Theorem, and the characterization of manifolds of constant curvature.

Topologie des variétés, analyse globale et analyse des variétés

Stig I. ANDERSSON, Michel L. LAPIDUS, (Editors). — **Progress in inverse spectral geometry.** — Trends in mathematics. — Un vol. relié, 17×24, de 196 p. — ISBN 3-7643-5755-X. — Prix: SFr. 88.00. — Birkhäuser Verlag, Basel, 1997.

This is a collection of 10 coherent papers originating from a conference on inverse spectral geometry by leading experts in this field. This book aims at presenting a comprehensive overview