

# Géométrie différentielle

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Robin J.Y. McLEOD, M. Louisa BAART. — **Geometry and interpolation of curves and surfaces.** — Un vol. relié, 16×23,5, de XIV, 414 p. — ISBN 0-521-32153-0. — Prix: £50.00. — Cambridge University Press Cambridge, 1998.

The authors start with simple interpolation, including splines. They extend these simple procedures to the production of conic sections and then introduce projective coordinates as tools for dealing with higher-order curves and such important concepts as singular points. They present many applications and concrete examples, including an analysis of the rational and polynomial cubics, parabolic interpolation, geometric approximation, and the numerical solution of trajectory problems. In the final chapter they apply the basic theory to the construction of finite-element basis functions and surface interpolants over nonregular shapes and discuss the simple cases of the Steiner surface and the cubic surface.

Burkard POLSTER. — **A geometrical picture book.** — Universitext. — Un vol. relié, 16,5×24,5, de XX, 291 p. — ISBN 0-387-98437-2. — Prix: DM 98.00. — Springer, New York, 1998.

Pictures are what this book is all about; original pictures of everybody's favorite geometries such as configurations, projective planes and spaces, circle planes, generalized polygons, mathematical biplanes, and other designs which capture much of the beauty, construction principles, particularities, substructures, and interconnections of these geometries. This guided tour includes lots of stereograms of the spatial models, games and puzzles and instructions on how to construct your own pictures and build some of the spatial models yourself.

Hendrik VAN MALDEGHEM. — **Generalized polygons.** — Monographs in mathematics, vol. 93. — Un vol. relié, 17,5×24, de xv, 502 p. — ISBN 3-7643-5864-5. — Prix: SFr. 178.00. — Birkhäuser Verlag, Basel, 1998.

This book is the first book to cover, in a coherent manner, the theory of polygons from scratch. In particular, it fills elementary gaps in the literature and gives an up-to-date account of current research in this area, including most proofs, which are often unified and streamlined in comparison to the versions generally known. The approach taken in the book is of geometric nature, but algebraic results are included and proven (in a geometric way). A noteworthy feature is that the book unifies and generalizes notions, definitions and results that exist for quadrangles, hexagons, octagons — in the literature very often considered separately — to polygons.

## *Géométrie différentielle*

Thierry AUBIN. — **Some nonlinear problems in Riemannian geometry.** — Springer monographs in mathematics. — Un vol. relié, 16,5×24,5, de xvii, 395 p. — ISBN 3-540-60752-8. — Prix: DM 168.00. — Springer, Berlin, 1998.

During the last few years, the field of nonlinear problems has undergone great development. This book, the core of which is the content of the author's earlier book (Springer 1983), updated and extended in each chapter, and augmented by several completely new chapters, deals with some important geometric problems that have only recently been solved or partially solved. Each problem is explained with the present status of its solution and the most recent methods of approaching the proofs. The main aim is to explain some methods and new techniques, and to apply them to problems coming from geometry or from physics.