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surfaces. — Surfaces as plane diagrams. — Distinguishing surfaces. — Patterns on surfaces. — Maps and graphs. — Vector fields on surfaces. — Plane tessellation representations of compact surfaces. — Some applications of tessellation representations. — Introducing the fundamental group. — Surfaces with boundaries, with an application to knots. — Graphs and groups, problem exercises, tutorial solutions.

Stephen HUGGETT, David JORDAN. — **A topological aperitif.** — Un vol. broché,  $17 \times 24$ , de VIII, 166 p. — ISBN 1-85233-377-4. — Prix: DM 49.90. — Springer, London, 2001.

This is a book of elementary geometric topology, in which geometry, frequently illustrated, guides calculation. The book starts with a wealth of examples, often subtle, of how to be mathematically certain whether two objects are the same from the point of view of topology. After introducing surfaces, such as the Klein bottle, the book explores the properties of polyhedra drawn on these surfaces. Even in the simplest case, of spherical polyhedra, there are good questions to be asked. More refined tools are developed in a chapter on winding number, and an appendix gives a glimpse of knot theory.

### *Topologie algébrique*

Jaumé AGUADÉ, Carles BROTO, Carles CASACUBERTA, (Editors) — **Cohomological methods in homotopy theory.** — Barcelona Conference on Algebraic Topology, Bellaterra, Spain, June 4-10, 1998. — Progress in mathematics, vol. 196. — Un vol. relié,  $16 \times 24$ , de 415 p. — ISBN 3-7643-6588-9. — Prix: SFr. 148.00. — Birkhäuser, Basel, 2001.

This book contains a collection of articles summarizing the state of knowledge in a large portion of modern homotopy theory. A call for articles was made on the occasion of an emphasis semester organized by the Centre de Recerca Matemàtica in Bellaterra (Barcelona) in 1998. The main topics treated in the book include abstract features of stable and unstable homotopy, homotopical localizations,  $p$ -compact groups,  $H$ -spaces, classifying spaces for proper actions, cohomology of discrete groups,  $K$ -theory and other generalized cohomology theories, configuration spaces, and Lusternik-Schnirelmann category.

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

Isaac CHAVEL. — **Isoperimetric inequalities: differential geometric and analytic perspectives.** — Cambridge tracts in mathematics, vol. 145. — Un vol. relié,  $16 \times 23$ , de XII, 268 p. — ISBN 0-521-80267-9. — Prix: £50.00. — Cambridge University Press, Cambridge, 2001.

This introduction treats the classical isoperimetric inequality in Euclidean space and contrasting rough inequalities in noncompact Riemannian manifolds. The treatment in Euclidean space features a number of proofs of the classical inequality in increasing generality, providing in the process a transition from the methods of classical differential geometry to those of modern geometric measure theory; and the treatment in Riemannian manifolds features discretization techniques and applications to upper bounds of large time heat diffusion in Riemannian manifolds. The result is an introduction to the rich tapestry of ideas in geometry and analysis, a subject that continues to inspire fresh ideas in geometry and analysis to this very day — and beyond.

David N. YETTER. — **Functorial knot theory: categories of tangles, coherence, categorical deformations, and topological invariants.** — Series on knots and everything, vol. 26. — Un vol. relié,  $16 \times 23$ , de 230 p. — ISBN 981-02-4443-6. — Prix: £40.00. — World Scientific, Singapore, 2001.

This book begins with a detailed exposition of the key ideas in the discovery of monoidal categories of tangles as central objects of study in low-dimensional topology. The focus then