

Topologie algébrique

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in connection with the Prague Topological Symposium, held in 2001. During the last 10 years the focus in general topology changed and therefore the selection of topics differs slightly from those chosen in 1992. The following areas experienced significant developments: topological groups, function spaces, dimension theory, hyperspaces, selections, geometric topology (including infinite-dimensional topology and the geometry of Banach spaces). Of course, not every important topic could be included in this book. Except surveys, the book contains several historical essays written by eminent topologists.

Topologie algébrique

Hans-Joachim BAUES. — **The homotopy category of simply connected 4-manifolds.** — London Mathematical Society lecture note series, vol. 297. — Un vol. broché, 15×23 , de x, 298 p. — ISBN 0-521-53103-9. — Prix: £ 24.95. — Cambridge University Press, Cambridge, 2003.

The homotopy type of a closed simply connected 4-manifold is determined by the intersection form. The homotopy classes of maps between two such manifolds, however, do not coincide with the algebraic morphisms between intersection forms. The problem therefore arises of computing the homotopy classes of maps algebraically and determining the law of composition for such maps. This problem is solved in the book by introducing new algebraic models of a 4-manifold.

Jiří MATOUŠEK. — **Using the Borsuk-Ulam theorem: lectures on topological methods in combinatorics and geometry.** — Universitext. — Un vol. broché, $15,5 \times 23,5$, de xii, 196 p. — ISBN 3-540-00362-2. — Prix: € 39.95. — Springer, Berlin, 2003.

A number of important results in combinatorics, discrete geometry, and theoretical computer science have been proved by surprising applications of algebraic topology. While the results are quite famous, their proofs and the underlying methods are not so widely understood. This textbook explains elementary but powerful topological methods based on the Borsuk-Ulam theorem and its generalizations. It covers many substantial results, sometimes with proofs simpler than those in the original papers. At the same time, it assumes no prior knowledge of algebraic topology, and all the required topological notions and results are gradually introduced. History, additional results, and references are presented in separate sections.

Topologie des variétés, analyse globale et analyse des variétés

Gerhard BURDE, Heiner ZIESCHANG. — **Knots.** — Second revised and extended edition. — De Gruyter studies in mathematics, vol. 5. — Un vol. relié, $18 \times 24,5$, de xii, 559 p. — ISBN 3-11-017005-1. — Prix: € 69.16. — Walter de Gruyter, Berlin, 2003.

This book is an introduction to classical knot theory. Topics covered include: different constructions of knots, knot diagrams, knot groups, fibred knots, characterisation of torus knots, prime decomposition of knots, cyclic coverings and Alexander polynomials and modules together with the free differential calculus, braids, branched coverings and knots, Montesinos links, representations of knot groups, surgery of 3-manifolds and knots. Knot theory has expanded enormously since the first edition of this book published in 1985. A special feature of the second edition is the introduction to two new constructions of knot invariants, namely the Jones and homfly polynomials. The book contains many figures and some tables of invariants of knots and an extensive bibliography. This comprehensive account is an indispensable reference source for anyone interested in both classical and modern knot theory.