

# Catégories, algèbre homologique, cohomologie des groupes

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papers on the considered topics. It contains both classical and contemporary results and methods. A specific feature of the book is that it includes as its inseparable part more than 250 exercises and examples with detailed hints (50% of the numbered statements), some of them treating serious mathematical results.

### *Catégories, algèbre homologique, cohomologie des groupes*

Henri CARTAN and Samuel EILENBERG. — **Homological algebra.** — Princeton landmarks in mathematics. — Un vol. broché, 15,5 × 23,5, de xv, 390 p. — ISBN 0-691-04991-2. — Prix: US\$19.95. — Princeton University Press, Princeton, 1999.

When this book was written, methods of algebraic topology had caused revolutions in the world of pure algebra. To clarify the advances that had been made, Cartan and Eilenberg tried to unify the fields and to construct the framework of a fully fledged theory. The invasion of algebra has occurred on three fronts through the construction of cohomology theories for groups, Lie algebras, and associative algebras. This book presents a single homology (and also cohomology) theory that embodies all three; a large number of results is thus established in a general framework. Subsequently, each of the three theories is singled out by a suitable specialization, and its specific properties are studied.

### *Théorie des groupes et généralisations*

Paul C. EKLOF, Rüdiger GÖBEL, (Editors). — **Abelian groups and modules: International Conference in Dublin, August 10-14, 1998.** — Trends in mathematics. — Un vol. relié, 17 × 24, de viii, 373 p. — ISBN 3-7643-6172-7. — Prix: SFr. 168.00. — Birkhäuser, Basel, 1999.

In a series of eight invited survey talks, experts in the field presented several active areas of research: Almost completely decomposable abelian groups, Butler groups and almost free groups – the classification problem, and invariants of special classes of torsion free abelian groups. — Totally projective groups, their automorphism groups and their group rings – questions about unique passage between these categories. — Radicals commuting with products. — The Ziegler spectra of Neumann regular rings and the class (semi-) groups of Prüfer domains. — The Krull-Schmidt property for valuation domains. These main talks were accompanied by many other presentations of current research on abelian groups and modules. Methods from model theory, category theory, infinite combinatorics, representation theory, classical algebra and geometry were applied to the study of abelian groups and modules; conversely, results and methods from abelian group theory were applied to general module theory and non-commutative groups.

Thomas PETERFALVI. — **Character theory for the odd order theorem.** — Translated by Robert Sandling. — London Mathematical Society lecture note series, vol. 272. — Un vol. broché, 15 × 23, de vii, 154 p. — ISBN 0-521-64660-X. — Prix: £24.95. — Cambridge University Press, Cambridge, 2000.

The famous and important theorem of W. Feit and J.G. Thompson states that every group of odd order is solvable, and the proof of this has roughly two parts. The first part appeared in Bender & Glauberman's *Local analysis for the odd order theorem* which was number 188 in this series. This book provides the character-theoretic second part and thus completes the proof. Also included here is a revision of a theorem of Suzuki on split BN-pairs of rank 1; a prerequisite for the classification of finite simple groups.