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Kapitel: Théorie des groupes et généralisations

algebras, primary decomposition, Noetherian domains, and the Krull-Schmidt property... π-domains, Prüfer domains, GCD-domains, pullbacks, $A + XB[X]$ domains, pseudo-valuation rings, Hermite rings, and semi-Steinitz rings... Krull and projective dimensions, n-coherence, Kaplansky ideal transform, trace properties, polynomial rings, formal power series rings, semi-normality, and root closure... plane cubic curves, spectral topology, and completions.

Théorie des groupes et généralisations

John COSSEY, Charles F. MILLER III, Walter D. NEUMANN, Michael SHAPIRO, (Editors). — **Geometric group theory down under.** — Proceedings of a Special Year in Geometric Group Theory, Canberra, Australia, 1996. — Un vol. relié, 18×24,5, de XII, 332 p. — ISBN 3-11-016366-7. — Prix: DM 248.00. — Walter de Gruyter, Berlin, 1999.

This volume contains the fully refereed proceedings of a Special Year held at the Australian National University and Melbourne University. The high point of the year was an International Conference from 14-19 July 1996 held at the ANU in Canberra. The contributions to this volume present an overall picture of current research in the area, including such topics as theory of algebraic groups, theory of automatic and hyperbolic groups, convergence groups, distortion of subgroups, Artin groups and braid groups, amenable groups, combinatorial approaches to conformal structure, algebraic and geometric automorphism groups, and geometric invariants of groups.

Benjamin FINE, Gerhard ROSENBERGER. — **Algebraic generalizations of discrete groups: a path to combinatorial group theory through one-relator products.** — Pure and applied mathematics, vol. 223. — Un vol. relié, 16×24, de IX, 316 p. — ISBN 0-8247-0319-7. — Prix: US$150.00. — Marcel Dekker, New York, 1999.

As the first full-length monograph on one-relator products of cyclics, this book analyzes generalizations of discrete groups that share linearity properties such as the Tits alternative, virtual torsion-freeness, and amalgam structures with discrete groups... introduces the concept of essential representations as a major tool in the study of infinite discrete groups and their linearity properties... investigates the Magnus method and its geometric version, cyclically pinched and conjugacy pinched one-relator groups, Bass-Serre theory, the techniques of Nielsen reduction, and geometric group theory... and more.

A.A. IVANOV. — **Geometry of sporadic groups I: Petersen and tilde geometries.** — Encyclopedia of mathematics and its applications, vol. 76. — Un vol. relié, 16×23,5, de XIII, 408 p. — ISBN 0-521-41362-1. — Prix: £45.00. — Cambridge University Press, Cambridge, 1999.

This book is the first volume in two-volume set, which will provide the complete proof of classification of two important classes of geometries, closely related to each other: Petersen and tilde geometries. There is an infinite family of tilde geometries associated with non-split extensions of symplectic groups over a field of two elements. Besides that there are 12 exceptional Petersen and tilde geometries. These exceptional geometries are related to sporadic simple groups, including the famous Monster group, and this volume gives a construction for each of the Petersen and tilde geometries which provides an independent existence proof for the corresponding automorphisms group.

Shoon K. KIM. — **Group theoretical methods and applications to molecules and crystals.** — Un vol. relié, 18×25, de XVI, 492 p. — ISBN 0-521-64062-8. — Prix: £95.00. — Cambridge University Press, Cambridge, 1999.

The book explains the basic aspects of symmetry groups as applied to problems in physics and chemistry using an approach pioneered and developed by the author. The symmetry groups and their representations are worked out explicitly, eliminating the unduly abstract nature of

group theoretical methods. The author has systematized the wealth of knowledge on symmetry groups that has accumulated during the century since Fedrov discovered the 230 space groups. All space groups, unitary as well as anti-unitary, are reconstructed from the algebraic defining relations of the point groups. The book assumes only an elementary knowledge of quantum mechanics. Numerous applications of the theorems are described to aid understanding.

Mario PETRICH, Norman R. REILLY. — **Completely regular semigroups.** — Canadian Mathematical Society series of monographs and advanced texts, vol. 23. — Un vol. relié, 17×24,5, de x, 481 p. — ISBN 0-471-19571-5. — Prix: £74.50. — John Wiley, New York, 1999.

Sushkevich's book *The Theory of Generalized Groups* (1937) may be considered the grandfather of successive generations of texts on the theory of semigroups. The present book is one of the proud grandchildren of Sushkevich's book. It treats completely regular semigroups that were conceived in the fertile imagination of A.H. Clifford and nurtured by many who showed not only ingenuity but a genuine affection. It is hoped that the theory will profit from this book as has the book itself profited from the theory, thus continuing a development that shows promise of greater things to come as well as intellectual challenge and esthetic perfection.

Lluís PUIG. — **On the local structure of Morita and Rickard equivalences between Brauer blocks.** — Progress in mathematics, vol. 178. — Un vol. relié, 16,5×24, de 260 p. — ISBN 3-7643-6156-5. — Prix: SFr. 128.00. — Birkhäuser, Basel, 1999.

The book gives a complete description of the source algebra of a Brauer block which has been discovered by the author. An effort has been made to make the book accessible to post-graduate students interested in finite groups or noncommutative algebras. This book describes the source algebra of a block from the source algebra of a Rickard equivalent block and the source of the Rickard equivalence. This description requires a new induction procedure and the introduction of suitable graded differential algebras. It leads to strong consequences such as the facts that the nilpotent blocks form a union of classes and that the basic Rickard equivalences preserve defect groups and Brauer categories.

Audrey TERRAS. — **Fourier analysis on finite groups and applications.** — London Mathematical Society student texts, vol. 43. — Un vol. relié, 15×23, de x, 442 p. — ISBN 0-521-45718-1. — Prix: £18.95. — Cambridge University Press, Cambridge, 1999.

This book gives a friendly introduction to Fourier analysis on finite groups, both commutative and noncommutative. The author divides the book in two parts. In the first part, she parallels the development of Fourier analysis on the real line and the circle, and then moves on to analogues of higher dimensional Euclidean space. The second part emphasizes matrix groups, such as the Heisenberg group of upper triangular 3×3 matrices with 1s down the diagonal and entries in a finite field, and it also includes a comparison of the finite and infinite versions of Selberg's trace formula. The book concludes with an introduction to zeta functions on finite graphs via the trace formula.

Groupes topologiques; groupes et algèbres de Lie

J.D. DIXON, M.P.F. DU SAUTOY, A. MANN & D. SEGAL. — **Analytic pro-*p* groups.** — 2nd edition. — Revised and enlarged by Marcus du Sautoy & Dan Segal. — Cambridge studies in mathematics, vol. 61. — Un vol. relié, 15,5×23,5, de XVIII, 368 p. — ISBN 0-521-65011-9. — Prix: £37.50. — Cambridge University Press, Cambridge, 1999.

The theory of p-adic analytic pro-p groups has undergone significant development since the seminal work of Lazard in 1965. This book presents a complete and self-contained account of