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Kapitel: Groupes topologiques; groupes et algèbres de Lie

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

this theory, which has many applications in both group theory and number theory. The first part of the book is group theoretic. It develops the theory of pro-p groups of finite rank, starting from the first principles and using elementary methods. Part II introduces p-adic analytic groups. Part III, consisting of material new to the second edition, takes the theory further. Among those topics dealt with are the theory of pro-p groups of finite coclass, the dimension subgroup series, and its associated graded Lie algebra.

V.S. VARADARAJAN. — **An introduction to harmonic analysis on semisimple Lie groups.** — Cambridge studies in advanced mathematics, vol. 16. — Un vol. broché, 15×23, de x, 316 p. — ISBN 0-521-66362-8. — Prix: £24.95. — Cambridge University Press, Cambridge, 1999.

This graduate-level textbook is an introduction to the representation theory of semisimple Lie groups. As such, it will be suitable for research students in algebra and analysis, and for research mathematicians requiring a readable account of the topic. The author emphasizes the development of the central themes of the subject in the context of special examples, without losing sight of its general flow and structure. The author begins with an account of compact groups and discusses the Harish Chandra modules. Then he introduces the Plancherel formula and theory of Eisenstein integrals. The final sections are devoted to considering the irreducible characters of semisimple Lie groups, including explicit calculations of $SL_2(\mathbf{R})$.

Mesure et intégration

Daniel W. STROOCK. — **A concise introduction to the theory of integration.** — Third edition. — Un vol. relié, 18,5×26, de XIV, 253 p. — ISBN 0-8176-4073-8. — Prix: SFr. 50.00. — Birkhäuser, Boston, 1999.

The major new feature of this third edition is the inclusion of a new chapter which introduces the Fourier transform. Since Hermite functions play a central role in his treatment of Parseval's identity and the inversion formula, Stroock's approach bears greater resemblance to that adopted by Norbert Wiener than it does to that used in most modern introductory texts. An additional feature of this edition is that solutions to all problems are provided. As a self-contained text, this book is excellent for both self-study and the classroom.

Fonctions de plusieurs variables complexes

Kichoon YANG. — **Meromorphic functions and projective curves.** — Mathematics and its applications, vol. 464. — Un vol. relié, 16×25, de VII, 201 p. — ISBN 0-7923-5505-9. — Prix: Dfl. 175.00. — Kluwer Academic Publishers, Dordrecht, 1999.

The main purpose of this volume is to give an exposition of various aspects of meromophic functions and linear series on algebraic curves, with some emphasis on families of meromorphic functions. It is written in such a way as to facilitate their applications in other areas of mathematics. Meromorphic functions on a compact Riemann surface, or, more generally, holomorphic curves and linear series, have numerous applications in many different areas of mathematics. This work gives a concise survey of results in the elementary theory of meromophic functions and divisors on curves, and makes these results more accessible to students and non-experts, in particular differential geometers.