Groupes topologiques ; groupes et algèbres de Lie

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Neil HINDMAN, Dona STRAUSS. — **Algebra in the Stone-Čech compactification: theory and applications.** — De Gruyter expositions in mathematics, vol. 27. — Un vol. relié, 17,5×24,5, de XIII, 485 p. — ISBN 3-11-015420-X. — Prix: DM 258.00. — Walter de Gruyter, Berlin, 1998.

A study of the algebraic properties of compact right topological semigroups in general and the Stone-Čech compactification of a discrete semigroup in particular. Several powerful applications to combinatorics, primarily to the branch of combinatorics known as Ramsey theory, are given. Connections with topological dynamics and ergodic theory are also presented. The text is essentially self-contained and does not require any prior mathematical expertise beyond a knowledge of the basic concepts of algebra, analysis, and topology standardly covered in the first year of graduate school. Most of the material presented is based on results that have been available in research journals.

Karl H. HOFMANN, Sidney A. MORRIS. — **The structure of compact groups: a primer for the student, a handbook for the expert.** — De Gruyter studies in mathematics, vol. 25. — Un vol. relié, 17,5×24,5, de XVII, 833 p. — ISBN 3-11-015268-1. — Prix: DM 278.00. — Walter de Gruyter, Berlin, 1998.

The theme of this book is the *structure theory* of compact groups. It contains a completely self-contained introduction to linear Lie groups and a substantial body of material on compact Lie groups. The authors' approach is distinctive in so far as they define a linear Lie group as a particular subgroup of the multiplicative group of a Banach algebra. Compact Lie groups are recognized at an early stage as being linear Lie groups. This approach avoids the use of machinery on manifolds. The text is written in a style to make it accessible to the beginning graduate student with a basic knowledge in analysis, algebra, and topology.

Elemér E. ROSINGER. — **Parametric Lie group actions on global generalised solutions of nonlinear PDEs: including a solution to Hilbert's fifth problem.** — Mathematics and its applications, vol. 452. — Un vol. relié, 17×25, de XVII, 234 p. — ISBN 0-7923-5232-7. — Prix: Dfl. 195.00. — Kluwer Academic Publishers, Dordrecht, 1998.

This book presents global actions of arbitrary Lie groups on large classes of generalised functions by using a novel parametric approach. This new method extends and completes earlier results of the author and collaborators, in which global Lie group actions on generalised functions were only defined in the case of projectable or fibre preserving Lie group actions. The parametric method opens the possibility of dealing with vastly larger classes of Lie semigroup actions which still transform solutions into solutions. These Lie semigroups can contain arbitrary noninvertible smooth mappings. Thus, they cannot be subsemigroups of Lie groups.

Xiaoping XU. — **Introduction to vertex operator superalgebras and their modules.** — Mathematics and its applications, vol. 456. — Un vol. relié, 17×25, de XVI, 356 p. — ISBN 0-7923-5242-4. — Prix: Dfl. 295.00. — Kluwer Academic Publishers, Dordrecht, 1998.

This book presents a systematic study on the structures of vertex operator superalgebras and their modules. Related theories of self-dual codes and lattices are included, as well as recent achievements on classifications of certain simple vertex operator superalgebras and their irreducible twisted modules, constructions of simple vertex operator superalgebras from graded associative algebras and their antié-involutions, self-dual codes and lattices.