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Kapitel: Théorie des groupes et généralisations

the underlying algebra. On the other hand, via congruence relations quotient algebras can be formed which may have "nicer" properties than the original algebras. Moreover, in many cases congruences are determined by some of their classes. For instance in the case of groups, rings and Boolean algebras, congruences are determined by each single one of their classes. The aim of this book is to present the most important results concerning congruence classes, dependences between them as well as connections to subalgebras.

Leonid VAINERMAN, (Editor). — **Locally compact quantum groups and groupoids: proceedings of the Meeting of Theoretical Physicists and Mathematicians, Strasbourg, 2002.** — IRMA lectures in mathematics and theoretical physics, vol. 2. — Un vol. broché, 17×24, de 247 p. — ISBN 3-11-017690-4. — Prix: €34.53. — Walter de Gruyter, Berlin, 2003.

This proceedings book contains seven refereed research papers on locally compact quantum groups and groupoids by leading experts in the respective fields. Topics covered are: constructions and examples of locally compact quantum groups and their multiplicative unitaries; duality theory for locally compact quantum groups; quantum groupoids, especially coming from extensions of operator algebras and rings. Many mathematical results are motivated by problems in theoretical physics. Historical remarks set the results presented in perspective.

Théorie des groupes et généralisations

Alexander LUBOTZKY, Dan SEGAL. — **Subgroup growth.** — Progress in mathematics, vol. 212. — Un vol. relié, 16×24, de XXI, 453 p. — ISBN 3-7643-6989-2. — Prix: SFr. 148.00. — Birkhäuser, Basel, 2003.

Subgroup growth studies the distribution of subgroups of finite index in a group as a function of the index. In the last two decades this topic has developed into one of the most active areas of research in infinite group theory; this book is a systematic and comprehensive account of the substantial theory which has emerged. As well as determining the range of possible "growth types", for finitely generated groups in general and for groups in particular classes such as linear groups, a main focus of the book is on the tight connection between the subgroup growth of a group and its algebraic structure. A wide range of mathematical disciplines play a significant role in this work; as well as various aspects of infinite group theory, these include finite simple groups and permutation groups, profinite groups, arithmetic groups and strong approximation, algebraic and analytic number theory, probability, and p-adic model theory. The book concludes with a list of over 60 challenging open problems that will stimulate further research in this rapidly growing subject.

Katrin TENT, (Editor). — **Tits buildings and the model theory of groups.** — London Mathematical Society lecture note series, vol. 291. — Un vol. broché, 15×23, de X, 298 p. — ISBN 0-521-01063-2. — Prix: £29.95. — Cambridge University Press, Cambridge, 2003.

This volume contains selected papers by leading researchers from a conference held in Würzburg in 2000. The first part of the book provides a general introduction to many aspects of buildings and their geometries, based on short lecture courses given at the conference. The rest of the book comprises survey and research articles on model theoretic results and techniques, showing the vitality and richness of these branches of mathematics. Among the most fruitful techniques, amalgamation constructions à la Hrushovski are explained and classified as they continue to play an important role both in model theory and geometry. The articles succeed in demonstrating the close connection between geometry, group theory an model theory.