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Jerzy WEYMAN. — **Cohomology of vector bundles and syzygies.** — Cambridge tracts in mathematics, vol. 149. — Un vol. relié,  $16 \times 23$ , de XIV, 371 p. — ISBN 0-521-62197-6. — Prix: £55.00. — Cambridge University Press, Cambridge, 2003.

The central theme of this book is an exposition of the geometric technique of calculating syzygies. It is written from the point of view of commutative algebra; without assuming any knowledge of representation theory, the calculation of syzygies of determinantal varieties is explained. The starting point is a definition of Schur functors, and these are discussed from both an algebraic and a geometric point of view. Then a chapter on various versions of Bott's theorem leads to a careful explanation of the technique itself, based on a description of the direct image of a Koszul complex. Applications to determinantal varieties follow. There are also chapters on applications of the technique to rank varieties for symmetric and skew symmetric tensors of arbitrary degree, closures of conjugacy classes of nilpotent matrices, discriminants, and resultants. Numerous exercises are included to give the reader insight into how to apply this important method.

## ***K*-théorie**

Guido MISLIN, Alain VALETTE. — **Proper group actions and the Baum-Connes conjecture.** — Advanced courses in mathematics, CRM Barcelona. — Un vol. broché,  $17 \times 24$ , de VII, 131 p. — ISBN 3-7643-0408-1. — Prix: SFr. 44.00. — Birkhäuser, Basel, 2003.

This book contains a concise introduction to the techniques used to prove the Baum-Connes conjecture. The Baum-Connes conjecture predicts that the  $K$ -homology of the reduced  $C^*$ -algebra of a group can be computed as the equivariant  $K$ -homology of the classifying space for proper actions. The approach is expository, but it contains proofs of many basic results on topological  $K$ -homology and the  $K$ -theory of  $C^*$ -algebras. It features a detailed introduction to Bredon homology for infinite groups, with applications to  $K$ -homology. It also contains a detailed discussion of naturality questions concerning the assembly map, a topic not well documented in the literature.

## ***Théorie des groupes et généralisations***

Jung Rae CHO, Jens MENNICKE, (Editors). — **Recent advances in group theory and low-dimensional topology.** — Research and exposition in mathematics, vol. 27. — Un vol. broché,  $17 \times 24$ , de 181 p. — ISBN 3-88538-227-X. — Prix: €30.00. — Heldermann Verlag, Lemgo, 2003.

This volume presents a selection of worked-out lectures that were held at the 2<sup>nd</sup> German-Korean Workshop on Algebra and Topology which took place at Pusan, Korea, in August 2000. The papers present surveys and new results that have not been published elsewhere. — *Contents*: P. Ackermann, M. Näätänen, G. Rosenberger: The arithmetic Fuchsian groups with signature  $(0; 2, 2, 2, q)$ . — R. Brown, M. Ballejos, T. Porter: Crossed complexes, free crossed resolutions and graph products of groups. — C.M. Campbell, P.P. Campbell, B.T.K. Hopson, E.F. Robertson: On the efficiency of direct powers of  $PGL(2p)$ . — D.A. Derevnin, Ann Chi Kim: The Coxeter prism in  $H^3$ . — D. Hennig, G. Rosenberger: Recent developments in the theory of Fuchsian and Kleinian groups. — Ann Chi Kim, Yangkok Kim: On generalized Whitehead links and 3-manifolds. — Jae-Ryong Kim, Moo Ha Woo: Topology fields and fixed points of flows. — E. Kudryavtseva, R. Weidmann, H. Zieschang: Quadratic equations in free groups and topological applications. — A. Mednykh, A. Vesnin: Colourings of polyhedra and hyperelliptic