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Communications in Mathematical Physics

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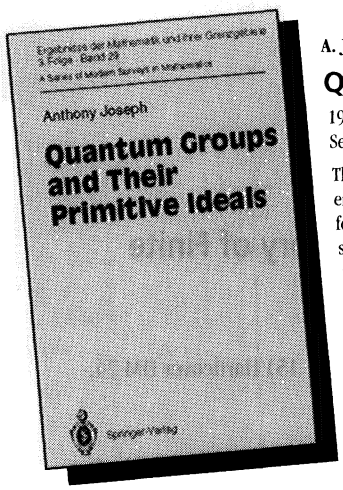
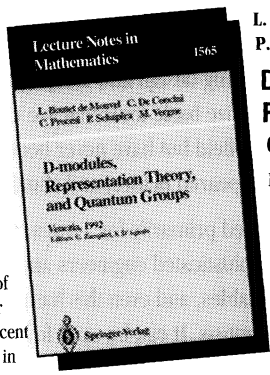


A. Joseph

Quantum Groups and their Primitive Ideals

1994. Approx. 510 pp. 2 figs. (Ergebnisse der Mathematik und ihrer Grenzgebiete. 3. Folge / A Series of Modern Surveys in Mathematics, Vol. 29) Hardcover DM 198,- ISBN 3-540-57057-8

The primary aim of this book is an in-depth study of the Drinfeld-Jimbo quantization Uq(g) of the enveloping algebra U(g) of a semisimple Lie algebra g and of the Hopf dual Rq (G) of Uq(g). The focus is on determining the primitive spectra of these rings. A systematic use of Hopf algebra structure, and in particular of adjoint action, is to be made. There will be an emphasis on "quantum phenomena" which are new features of Uq(g) and on how these can be used to even simplify the study of U(g). The reader will learn how the quantum viewpoint has revitalized the study of enveloping algebras and will become acquainted with proofs which have been developed over the last 20 years into a particularly efficient form. Many of the results are now only just being published in research journals.



L. Boutet de Monvel, C.de Concini, C. Procesi, P. Schapira, M. Vergne

D-modules, Representation Theory, and Quantum Groups

Editors: **G. Zampieri, A. D'Agnolo**

1993. VII, 217 pp. (Lecture Notes in Mathematics, Vol. 1565) Softcover DM 52,- ISBN 3-540-57498-0

CONTENTS: Indice de systemes differentiels.- Quantum groups.- Index theorems for R-constructible sheaves and for D-modules.- The equivariant Chern character and index of G-invariant operators.

C. Kassel

Quantum Groups

1994. XII, 531 pp. 88 figs. (Graduate Texts in Mathematics, Vol. 155) Hardcover DM 79,- ISBN 3-540-94370-6

This book provides an introduction to the theory of quantum groups with emphasis on the spectacular connections with knot theory and on Drinfeld's recent fundamental contributions. The first part presents in detail the quantum groups attached to SL_2 as well as the basic concepts of the theory of Hopf algebras. Part Two focuses on Hopf algebras that produce solutions of the Yang-Baxter equation, and on Drinfeld's quantum double construction. In the following part we construct isotopy invariants of knots and links in the three-dimensional Euclidean space, using the language of tensor categories. The last part is an account of Drinfeld's elegant treatment of the monodromy of the Knizhnik-Zamolodchikov equations, culminating in the construction of Kontsevich's universal knot invariant.

M. Enock, J.-M. Schwartz

Kac Algebras and Duality of Locally Compact Groups

1992. X, 257 pp. Hardcover DM 164,- ISBN 3-540-54745-2

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