

# New and Forthcoming

## Algebra, Arithmetic, and Geometry

In Honor of Y.I. Manin

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## Observation and Control for Operator Semigroups

**Marius Tucsnak**, Université Nancy, France; **George Weiss**, Tel Aviv University, Israel

This book studies observation and control operators for linear systems, in which the free evolution of the state can be described by an operator semigroup on a Hilbert space. Emphasized in the text are well-posedness, observability and controllability properties. The abstract results are supported by a large number of detailed examples coming mostly from partial differential equations.

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## Arithmetic and Geometry around Quantization

**Ozgur Ceyhan**; **Yuri I. Manin**; **Matilde Marcolli**, Max-Planck Institut, Bonn, Germany (Eds.)

Quantization has been a potent source of interesting ideas and problems in various branches of mathematics. This volume comprises both research and survey articles originating from the conference on Arithmetic and Geometry around Quantization held in Istanbul in 2006. A wide range of topics related to quantization are covered, thus aiming to give a glimpse of a broad subject in very different perspectives.

Contributors: S. Akbulut, S. Arkipov, Ö. Ceyhan, E. Frenkel, K. Fukaya, D. Gaijgory, S. Gurevich, R. Hadani, K. Kremnizer, S. Mahanta, S. Salur, G. Ben Simon, W. van Suijlekom.

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## Developments and Trends in Infinite-Dimensional Lie Theory

**Karl-Hermann Neeb**, Darmstadt University of Technology, Germany; **Arturo Pianzola**, University of Alberta, Canada (Eds.)

This collection of invited expository papers focuses on recent developments and trends in infinite-dimensional Lie theory, which has become one of the core areas of modern mathematics. The book is divided into three parts: infinite-dimensional Lie (super-)algebras, geometry of infinite-dimensional Lie (transformation) groups, and representation theory of infinite-dimensional Lie groups.

Contributors include: B. Allison, D. Beltita, W. Bertram, J. Faulkner, Ph. Gille, H. Glöckner, K.-H. Neeb, E. Neher, I. Penkov, A. Pianzola, D. Pickrell, T. Ratiu, N. Scheithauer, C. Schweigert, V. Serganova, K. Styrkas, K. Waldorf, and J. Wolf.

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## Symmetry and Spaces

In Honor of Gerry Schwarz

**H.E.A. Campbell**, Memorial University of Newfoundland, St. John's, NF, Canada; **Loek Helminck**, North Carolina State University, Raleigh, NC, USA; **Hans-Peter Kraft**, Universität Basel, Switzerland; **David Wehlau**, Queen's University, Kingston, ON, Canada (Eds.)

This volume covers the wide range of mathematics to which Gerry Schwarz has either made fundamental contributions or stimulated others to pursue. Three papers examine various aspects of modular invariant theory (Broer, Elmer and Fleischmann, Shank and Wehlau), and seven papers concentrate on characteristic 0 (Brion, Daigle and Freudentberg, Greb and Heinzner, Helminck, Kostant, Kraft and Wallach, Traves).

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## Frobenius Categories versus Brauer Blocks

The Grothendieck Group of the Frobenius Category of a Brauer Block

**Luis Puig**, Université Paris VII Denis Diderot, Paris, France

This book examines important questions in modern representation theory of finite groups. On the one hand, it introduces and develops the abstract setting of Frobenius categories (also called Saturated fusion systems), created by the author fifteen years ago for a better understanding of what was loosely called the local theory of finite groups or blocks, and for the purpose of an eventual classification. On the other hand, it presents the application of the abstract setting to the blocks. In particular, it develops a framework for a deeper understanding of one of the central open problems in representation theory, known as Alperin's Weight Conjecture (AWC).

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