CONTEMPORARY MATHEMATICS

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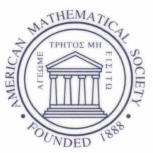
Algebraic Structures and Their Representations

XV Coloquio Latinoamericano de Álgebra
Cocoyoc, Morelos, México
July 20–26, 2003

José A. de la Peña
Ernesto Vallejo
Natig Atakishiyev
Editors



American Mathematical Society

http://dx.doi.org/10.1090/conm/376

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Providence, Rhode Island

2000 *Mathematics Subject Classification.* Primary 13D05, 13H10, 16E10, 16G20, 16G70, 16S36, 16W30, 94B60.

Library of Congress Cataloging-in-Publication Data

Coloquio Latinoamericano de Algebra (15th : 2003 ; Cocoyoc, Mexico)

Algebraic structures and their representations : XV Coloquio Latinoamericano de Algebra, Cocoyoc, Morelos, México, July 20–26, 2003 / José A. de la Peña, Ernesto Vallejo, Natig Atakishiyev, editors.

p. cm. — (Contemporary mathematics, ISSN 0271-4132 ; 376)

Includes bibliographical references.

ISBN 0-8218-3630-7 (alk. paper)

1. Ordered algebraic structures—Congresses. 2. Representations of graphs—Congresses. 3. Rings (Algebra)—Congresses. 4. Algebra—Congresses. I. Peña, José Antonio de la, 1958– II. Vallejo, Ernesto, 1959– III. Atakishiyev, Natig M. IV. Title. V. Contemporary mathematics (American Mathematical Society) ; v. 376.

QA172.C58 2003

511.3′3—dc22 2005042812

Contents

Preface

The XV Coloquio Latinoamericano de Álgebra was held in Cocoyoc, México in July 2003. Although this meeting has a rich history, dating back to those organized in Argentina by Villamayor, this meeting was only the second Latin-American conference on Algebra with a really multi-national character.

The Conference consisted of plenary sessions of general interest and special sessions in algebraic combinatorics, associative rings, cohomology of rings and algebras, commutative algebra, group representations, Hopf algebras, number theory, quantum groups and representation theory of algebras. More than 150 specialists from more than 20 countries participated in the meeting. We think the meeting reflected the diversity of topics and rich activity of the algebra groups in Latin America and their strong ties with other groups of mathematicians around the world.

The Scientific Organizing Committee of the Colloquium consisted of J.A de la Peña, N. Andruskiewitsch, A. Corso, C. Geiss, V. Kharchenko, F. Raggi, M. J. Redondo, E. Vallejo and R. Villarreal. There was financial support from the Instituto de Matemáticas, UNAM and other Mexican institutions through research grants of the organizers. We are grateful to these mathematicians and institutions whose contributions made possible the realization of the meeting.

This Proceedings volume contains original research papers related to talks presented at the Colloquium. Moreover, there are several survey papers presenting important topics to a broader mathematical audience. There are also two invited papers presenting the work of two Mexican mathematicians, Raymundo Bautista and Roberto Martínez, founders of the Mexican school of Representation Theory of Algebras, whose work has been important in the development of mathematics in México. Part of the meeting was dedicated to them on the occasion of their 60th anniversary.

We express our gratitude to all authors submitting their contributions and we thank all the referees for their assistance.

We thank Teresa Hernandez for her technical support before and during the meeting; she also greatly helped us during the preparation of this volume. We thank Christine Thivierge of the AMS staff for her efficient support and help in the preparation of these Proceedings. Finally, we are glad that the Proceedings of the XV Coloquio Latinoamericano de Álgebra appears in the Contemporary Mathematics series of the American Mathematical Society.

J.A. de la Peña, N. Atakishiyev and E. Vallejo
Editors
México, December 2004

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List of Talks

Marcelo AGUIAR. New Hopf algebras related to symmetric functions.

Ricardo ALFARO. Minimum distance for One sided Code Ideals in Incidence Rings.

Eli ALJADEFF. Elementary abelian group induction: trace formulas for certain non abelian groups.

Alejandro ALVARADO. La retícula de clases conaturales y relaciones con otras retículas.

Nicolás ANDRUSKIEWITSCH. Examples of quantum groupoids.

Viacheslav ARTAMONOV. Action of Hopf algebras on quantum polynomials.

María José ASIAIN. Subgrupos tipo Frattini y Fitting asociados a una clase de grupos simples.

Ibrahim ASSEM. On split-by-nilpotent extensions.

Natig ATAKISHIYEV. Hamiltonian type operators in representations of the quantum algebra $U_q(su_{1,1})$.

Michael BAROT. Relaciones de Serre generalizadas.

César BAUTISTA. A quantum Jacobi identity for canonical bases of quantized universal enveloping algebras.

Margaret BEATTIE. The coradical of the dual of a lifting of a quantum plane.

Gabriella BÖHM. Hopf algebroids with bijective antipode.

Leonid BOKUT. Groebner-Shirshov bases for noncommutative algebras.

Joseph BRENNAN. Bicycles and Normality.

Osnel BROCHE. Symmetric and skew-symmetric elements in group rings.

Tomasz BRZEZINSKI. Corings and Morita contexts.

Juan Carlos BUSTAMANTE. The classifying space of a bound quiver.

Michael C. R. BUTLER. Cohomology of coproducts of algebras.

Stefaan CAENEPEEL. Galois corings from the descent theory point of view.

Víctor CASTELLANOS. Bilinear forms over finite dimensional algebras.

Claude CIBILS. Cartan-Leray for Galois covers.

J. Carlos CIFUENTES. El anillo de enteros en las estructuras canónicas del plano.

Robert COQUEREAUX. Quantum groupoids and Ocneanu bialgebras for ADE Dynkin diagrams.

Wagner CORTÉS. On Maximal Ideals and Brown McCoy Radical in Skew Polynomial Rings.

Guillermo CORTIÑAS. Dold-Kan-Puppe correspondence for rings.

J. Antonio DE LA PEÑA. Extension of an algebra by a representation-finite algebra.

María Luisa DE LEÓN. Cálculos de homología cíclica para hipersuperficies.

Rafael DIAZ. Categorization of Supersymmetries.

Shalom ELIAHOU. Small sumsets in finite groups.

Rogelio FERNÁNDEZ-ALONSO. Pseudocomplementos en la Retícula de Prerradicales sobre un Anillo.

Miguel FERRERO. Partial Actions of Groups on Algebras.

Delia FLORES DE CHELA. Quantum symmetric algebra.

Gilberto GARCIA-PULGARIN. Construcción de Conjuntos Bh[g] a partir de conjuntos Bh.

Anthony GERAMITA. Secant Varieties to products of P^1.

Antonio GIAMBRUNO. Asymptotics and polynomial identities.

Hernán GIRALDO. Categorías Derivadas de Subcategorías Co-resolving.

Lev GLEVSKY. Casi-homomorfismos y aproximaciones de los grupos.

Marisol GÓMEZ. On Lattice properties related to Hall subgroups of finite soluble groups.

Ramón GONZÁLEZ. Algebras de Hopf débiles y estructuras de biálgebra smash débil.

Edward GREEN. The work of Roberto Martínez Villa

Elena GUARDO. Fat points in $P^1 \times P^1$ and their Hilbert functions.

Juan J. GUCCIONE. Theory of braided Hopf crossed products.

Claus HAETINGER. On Jordan Generalized Higher Derivations in Rings.

Tom HALVERSON. A q-Partition Algebra.

Dieter HAPPEL. Combinatorial aspects of tilting theory.

Santos HERNÁNDEZ. Integer Root Chromatic Polynomials and the Prouhet-Tarry-Escott Problem.

Otto KERNER. Endomorphism rings of regular modules over wild hereditary algebras.

Vladislav KHARTCHENKO. On combinatorial rank of character Hopf algebras.

Anatoliy KLIMYK. Laplace operators and harmonics on the quantum vector spaces.

Marcelo LANZILOTTA. The simple connectedness of a weakly shod algebra.

Helmut LENZING. Hereditary noetherian categories with Serre duality.

Inmaculada LIZASOAIN. Representaciones proyectivas de grupos finitos.

Sergio LOPEZ-PERMOUTH. Finite rings characterized by the equivalence of their codes.

Eduardo MARCOS. Incidence Algebras and the Euler Characteristic.

Alexander MARTSINKOVSKY. Serre duality and the Auslander-Reiten formula.

Akira MASUOKA. Hopf Galois extensions arising from actions of a matched pair of groups.

Juan MIGLIORE. Level Algebras and Sets of Points.

Gabriel MINIAN. Numerably Contractible Categories and Spectra.

Fernando MONTANER. Bialgebra structures on current Lie algebras.

Alexander NECHAEV. Polylinear recurrences over modules, applications to Coding and Criptography.

Susan MONTGOMERY. H-stable Jacobson radicals and semiprime smash products.

Adrian OCNEANU. Quantum Subgroups and Canonical Bases.

Alexander ODESSKII. Elliptic algebras.

Tetsushi OGOMA. Cofinite subrings of a polynomial ring (An approach to Jacobian problem).

Rosa ORELLANA. Kronecker products of the hyperoctahedral group and centralized.

James OSTERBURG. Cocycle Equivalent Hopf Algebra Actions.

Igor PAK. Young tableau bijections.

María Inés PLATZECK. Representation dimension of some classes of artin algebras.

Francisco POLCINO. Central units in group rings.

Gerardo RAGGI. Fischer Spaces and Dynkin Diagrams.

Eric REYNAUD. The algebraic n-groups of homotopy of a presentation by quiver and relation.

Claus Michael RINGEL. Bautista and the development of modern representation theory of artin algebra.

Suemi RODRÍGUEZ. $SL_q(2)$ and Dipper-Donkin $GL_q(2)$ global symmetry for four-state quantum chains.

Irasema SARMIENTO. Generalized transition polynomials.

Hans-Jürgen SCHNEIDER. A characterization of quantum groups.

Jan SCHRÖER. Quantum minors and preprojective algebras.

Carlos SIGNORET. Serie de Composición relativas a una Subcategoría de Serre.

Aron SIMIS. Ideal theoretic notions related to birational transformations.

Xaro SOLER. On certain lattices of subgroups of finite soluble groups.

Andrea SOLOTAR. G-estructura de la cohomologia de Gerstenhaber-Schack de un algebra de Hopf.

María José SOUTO. Categoría de complejos de módulos proyectivo.

Vasudevan SRINIVAS. Zero cycles on surfaces and some applications.

Richard STANLEY. Recent progress in algebraic combinatorics.

Alexander STOLIN. Hopf algebras over commutative rings.

George SZETO. On a class of separable Hopf Galois extensions.

Kornel SZLACHANYI. Quantum groupoids and their module categories.

Earl TAFT. Is there a one-sided quantum group?

Rachel TAILLEFER. Algebraic Structure of Hopf Algebra Cohomology.

Mitsuhiro TAKEUCHI. A survey of Nichols algebras.

Sonia TREPODE. The Left and the Right Part of a Module Category.

Vijaylaxmi TRIVEDI. Hilbert-Kunz Functions and Multiplicities.

Carlos Alberto TRUJILLO. Campos Finitos y Conjuntos Bh.

Ualbay UMIRBAEV. The Nagata Conjecture.

Carlos VALENCIA. The Rees algebra of a bipartite graph.

Luis VALERO. Stable partitions and Alperin's wight conjecture.

Ernesto VALLEJO. Multiple hooks in Kronecker products of S_n characters.

Christian VALQUI. A categorical approach to excision for bivariant periodic cyclic homology.

Wolmer VASCONCELOS. Integral Closure of Algebraic Structures.

Juan Miguel VELÁSQUEZ. Partición del intervala $[0, p^(uh)]$ en conjuntos B_h.

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ISBN 0-8218-3630-7

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