Contributions in Algebra and Algebraic Geometry

International Conference
Algebra, Discrete Mathematics and Applications
December 9–11, 2017
Dr. Babasaheb Ambedkar Marathwada University
Aurangabad (Maharashtra), India

Shrikrishna G. Dani
Surender K. Jain
Jugal K. Verma
Meenakshi P. Wasadikar
Editors
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Contents

Preface viii

Leavitt path algebras over a poset of fields
   **Pere Ara** 1

Roots of elements in Lie groups and the exponential maps
   **S. G. Dani** 13

A note on Nullstellensatz over finite fields
   **Sudhir R. Ghorpade** 23

Minkowski inequality and equality for multiplicity of ideals of finite length in Noetherian local rings
   **Kriti Goel, R. V. Gurjar, and J. K. Verma** 33

Decomposition of singular elements of an algebra into product of idempotents, a survey
   **S. K. Jain and A. Leroy** 57

Some results on integrally closed domains
   **Anuj Jakhar, Sudesh K. Khanduja, and Neeraj Sangwan** 75

On examples of Baer and Rickart module hulls
   **Jae Keol Park and S. Tariq Rizvi** 81

Tableau correspondences and representation theory
   **Digjoy Paul, Amritanshu Prasad, and Arghya Sadhukhan** 109

A relationship between Gelfand-Tsetlin bases and Chari-Loktev bases for irreducible finite dimensional representations of special linear Lie algebras
   **K. N. Raghavan, B. Ravinder, and Sankaran Viswanath** 125

Algebra of generic matrices is not coherent
   **Lance Small and Efim Zelmanov** 135

Partial endomorphisms of almost self injective modules
   **Surjeet Singh** 139
Preface

This volume consists of texts of invited lectures in the area of algebra and algebraic geometry delivered at the International Conference on Algebra, Discrete Mathematics and Applications. The conference was organized by Professor Meenakshi Wasadikar in cooperation with Professor Shriram Nimbhorkar at the Department of Mathematics, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, India, during December 9–11, 2017, in honor of Fields Medalist Professor Efim Zelmanov.

The invited speakers included Professors Pere Ara (Universitat Autonoma de Barcelona, Spain), Arvind Ayyer (IISc, Bangalore, India), S. G. Dani (UM-DAE Centre for Excellence in Basic Sciences, University of Mumbai, Mumbai, India), A. Facchini (Padova, Italy), S. R. Ghorpade (IIT Bombay, Mumbai, India), S. K. Jain (Ohio, USA), S. K. Khanduja (IISER, Mohali, India), Andre Leroy (Lens, France), Amritanshu Prasad (IMSc., Chennai), K. N. Raghavan (IMSc., Chennai), S. T. Rizvi (Ohio, USA), Surjeet Singh (San Francisco, USA), Jugal K. Verma (IIT Bombay, Mumbai, India), B. N. Waphare (Savitribai Phule Pune University, Pune, India), and Efim Zelmanov (University of San Diego, CA, USA). Apart from the invited lectures, there were fifty contributory talks. More than 150 delegates participated in the conference.

All the papers in the volume are on topics in the mainstream of research in the field of algebra and algebraic geometry. The papers were refereed to uphold high standards. An important feature of this volume is that it contains some expository articles that can inspire interested researchers in the field to work on the questions raised in the articles.

The conference was inaugurated by Professor N. K. Thakare (Founder Vice-Chancellor, North Maharashtra University, Jalgaon, India) and presided over by Professor B. A. Chopade, Vice-Chancellor, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, India. During the inauguration, Professors Efim Zelmanov, S. K. Jain, S. B. Nimse (Ex-Vice-Chancellor, Lucknow University, Lucknow and Swami Ramanand Tirth Marathwada University, Nanded, India) spoke on the positive outcomes of organizing such conferences. Among other benefits these conferences provide inspiration to the younger members of the community.

The conference was supported by the Commission for Developing Countries (CDC) of the International Mathematical Union (IMU), Berlin, the National Board for Higher Mathematics (NBHM) of the Department of Atomic Energy, Mumbai, the Science and Engineering Research Board (SERB) of the Department of Science and Technology, New Delhi and the Defense Research and Development Organization (DRDO), New Delhi.
This volume owes its genesis to the conference mentioned above and it would be appropriate to record here thanks to all those who contributed to its organization and success. We are thankful to Professors B. A. Chopade (Vice-Chancellor), Sadhana Pande (Registrar), W. K. Sarwade (Director, BCUD) and other concerned authorities of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, for helping us in the organization of the conference. We thank Professors N. K. Thakare, Ajit I. Singh and Shriram Nimbhorkar for various suggestions regarding organization and funding. The whole-hearted support extended by Principal Madhukar Pawar and students Uttara, Karuna, Vidya, Yogita, Amit, Deepali and Jaya will always be a sweet memory. Thanks to each of them.

We take this opportunity to thank all the referees who gave their valuable time to referee the papers and who honored the deadlines given to them.

Last but not least, we profusely thank Christine M. Thivierge of the American Mathematical Society. She worked so diligently throughout the process, from the beginning until the volume came to fruition, promptly answering any question that we raised and sending timely reminders about deadlines.

Editors:
Shrikrishna G. Dani,
Surender K. Jain,
Jugal K. Verma, and
Meenakshi P. Wasadikar.
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This volume contains the proceedings of the International Conference on Algebra, Discrete Mathematics and Applications, held from December 9–11, 2017, at Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (Maharashtra), India.

Contemporary topics of research in algebra and its applications to algebraic geometry, Lie groups, algebraic combinatorics, and representation theory are covered.

The articles are devoted to Leavitt path algebras, roots of elements in Lie groups, Hilbert’s Nullstellensatz, mixed multiplicities of ideals, singular matrices, rings of integers, injective hulls of modules, representations of linear, symmetric groups and Lie algebras, the algebra of generic matrices and almost injective modules.