Lie Algebras, Vertex Operator Algebras, and Related Topics

Conference in Honor of J. Lepowsky and R. Wilson on Lie Algebras, Vertex Operator Algebras, and Related Topics
August 14–18, 2015
University of Notre Dame, Notre Dame, IN

Katrina Barron
Elizabeth Jurisich
Antun Milas
Kailash Misra
Editors

American Mathematical Society
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Preface

This volume contains the proceedings of the international conference “Lie Algebras, Vertex Operator Algebras, and Related Topics”, a tribute to James Lepowsky and Robert Wilson, held at the University of Notre Dame, Notre Dame, Indiana, August 14–18, 2015.

Since their seminal work in the 1970s, Lepowsky and Wilson, their collaborators, and their students have developed a transformative body of work intertwining the fields of Lie algebras, vertex algebras, number theory, theoretical physics, quantum groups, the representation theory of finite simple groups, and more. Their research and mentorship in the field have been instrumental in the development of the subject, and their influence continues through their work and the work of their students and collaborators. Jointly and individually they have supervised more than 30 Ph.D. students, several who are now distinguished researchers in their fields.

This volume features one expository article with open problems, and fourteen original research articles, dedicated to Jim and Robert reflecting just a bit of the broad and deep influences they have had, and continue to have in Lie algebras, vertex operator algebras and related areas of research.

We thank everyone who participated in the conference, those who helped plan and run the conference, and those who labored on this volume. The conference was made possible through the generous support of the National Science Foundation (NSF-DMS Conference Grant 1507305), a Participating Institutions Conference Award from the Institute for Mathematics and its Applications at the University of Minnesota, and through the generous support of the Center for Mathematics at the University of Notre Dame.

Without the hard work of the contributors and the referees, as well as the editorial staff of the American Mathematical Society, this volume would not have been feasible. Our thanks go to Christine M. Thivierge for her constant help and patience. We also thank the technical staff for allowing us to include a group picture of the participants.

We greatly appreciate the staff of the Mathematics Department and the Center for Mathematics at the University of Notre Dame for their help during the conference, in particular Lisa Driver, for her efficient and dedicated work on logistics.

We are grateful to Haisheng Li for helping us at the initial stage of the conference. Finally, we express our great appreciation to Yi-Zhi Huang—for providing invaluable help with the preparation of the NSF proposal, contributing to the proceedings, advising us on many aspects of the conference, and initiating the conference itself.

Katrina Barron, Elizabeth Jurisich
Antun Milas, Kailash Misra
Conference Participants
This volume contains the proceedings of the conference on Lie Algebras, Vertex Operator Algebras, and Related Topics, celebrating the 70th birthday of James Lepowsky and Robert Wilson, held from August 14–18, 2015, at the University of Notre Dame, Notre Dame, Indiana.

Since their seminal work in the 1970s, Lepowsky and Wilson, their collaborators, their students, and those inspired by their work, have developed an amazing body of work intertwining the fields of Lie algebras, vertex algebras, number theory, theoretical physics, quantum groups, the representation theory of finite simple groups, and more. The papers presented here include recent results and descriptions of ongoing research initiatives representing the broad influence and deep connections brought about by the work of Lepowsky and Wilson, and include a contribution by Yi-Zhi Huang summarizing some major open problems in these areas, in particular as they pertain to two-dimensional conformal field theory.