

# Contents

<b>Group Gradings on Lie Algebras, with Applications to Geometry. I</b> .....	1
Yuri Bahturin, Michel Goze, and Elisabeth Remm	
<b>Bounding the Dimensions of Rational Cohomology Groups</b> .....	51
Christopher P. Bendel, Brian D. Boe, Christopher M. Drupieski, Daniel K. Nakano, Brian J. Parshall, Cornelius Pillen, and Caroline B. Wright	
<b>Representations of the General Linear Lie Superalgebra in the BGG Category <math>\mathcal{O}</math></b> .....	71
Jonathan Brundan	
<b>Three Results on Representations of Mackey Lie Algebras</b> .....	99
Alexandru Chirvasitu	
<b>Free Field Realizations of the Date-Jimbo-Kashiwara-Miwa Algebra</b> .....	111
Ben Cox, Vyacheslav Futorny, and Renato Alessandro Martins	
<b>The Deformation Complex is a Homotopy Invariant of a Homotopy Algebra</b> .....	137
Vasily Dolgushev and Thomas Willwacher	
<b>Invariants of Artinian Gorenstein Algebras and Isolated Hypersurface Singularities</b> .....	159
Michael Eastwood and Alexander Isaev	
<b>Generalized Loop Modules for Affine Kac–Moody Algebras</b> .....	175
Vyacheslav Futorny and Iryna Kashuba	
<b>Twisted Localization of Weight Modules</b> .....	185
Dimitar Grantcharov	

<b>Dirac Cohomology and Generalization of Classical Branching Rules .....</b>	207
Jing-Song Huang	
<b>Cleft Extensions and Quotients of Twisted Quantum Doubles.....</b>	229
Geoffrey Mason and Siu-Hung Ng	
<b>On the Structure of <math>\mathbb{N}</math>-Graded Vertex Operator Algebras .....</b>	247
Geoffrey Mason and Gaywalee Yamskulna	
<b>Variations on a Casselman–Osborne Theme .....</b>	275
Dragan Miličić	
<b>Tensor Representations of Mackey Lie Algebras and Their Dense Subalgebras.....</b>	291
Ivan Penkov and Vera Serganova	
<b>Algebraic Methods in the Theory of Generalized Harish-Chandra Modules .....</b>	331
Ivan Penkov and Gregg Zuckerman	
<b>On Exceptional Vertex Operator (Super) Algebras .....</b>	351
Michael P. Tuite and Hoang Dinh Van	
<b>The Cubic, the Quartic, and the Exceptional Group <math>G_2</math> .....</b>	385
Anthony van Groningen and Jeb F. Willenbring	