

## Contents

The Editors Preface	ix
Automatic determination of optimal systems of Lie subalgebras: the package SymboLie	
LUCA AMATA and FRANCESCO OLIVERI	1
New Dubrovin-type integrability theory applications of differential rings	
OREST D. ARTEMOVYCH, DENIS L. BLACKMORE, RADOSŁAW A. KYCIA, and ANATOLIJ K. PRYKARPATSKI	19
Non-abelian Painlevé systems with generalized Okamoto integral	
I.A. BOBROVA and V.V. SOKOLOV	41
Mathematical etudes on quantum computation	
ALEXEI BOCHAROV	77
Quantum vector fields via quantum doubles and their applications	
DIMITRY GUREVICH and PAVEL SAPONOV	101
Non-linear homomorphisms of algebras of functions are induced by thick morphisms	
HOVHANNES M. KHUDAVERDIAN	115
On the Buchstaber-Rees theory of “Frobenius $n$ -homomorphisms” and its generalization	
H.M. KHUDAVERDIAN and TH.TH. VORONOV	131
Differential calculus over graded commutative algebras and vector bundles with inner structures	
JACOB KRYCZKA	141
Vinogradov’s cohomological geometry of partial differential equations	
FABRIZIO PUGLIESE, GIOVANNI SPARANO, and LUCA VITAGLIANO	157
Frölicher structures, diffieties, and a formal KP hierarchy	
JEAN-PIERRE MAGNOT, ENRIQUE G. REYES, and VLADIMIR RUBTSOV	183
Quasi-derivations on $U\mathfrak{gl}_n$ and the argument shift method	
G. SHARYGIN	197
Polarization of generalized Nijenhuis torsions	
PIERGIULIO TEMPESTA and GIORGIO TONDO	209