

CONTENTS

LECTURES

Vladimir S. Gerdjikov, A. Mikhailov and T. Valchev

RECURSION OPERATORS AND REDUCTIONS OF INTEGRABLE EQUATIONS ON SYMMETRIC SPACES	11
1. Introduction	12
2. Preliminaries	13
3. Reductions of Generalized HF Equation	20
4. Recursion Operators	25
5. Wronskian Relations and ‘Squared Solutions’ of L	31
6. Recursion Operators – An Alternative Approach	34
7. The Class of NLEE and the Recursion Operators	36
8. Conclusions	37
Acknowledgements	38
Appendix A	38
Appendix B	40
References	41

Andrei Ludu

DIFFERENTIAL GEOMETRY OF MOVING SURFACES AND ITS RELATION TO SOLITONS	43
1. Introduction	43
2. Prerequisites	45
3. Cartan Theory of Frames and Connection	47
4. The Theory of Motion of Curves	54
5. Theory of Motion of Surfaces	63
6. Application to Motion of Surfaces	65
Acknowledgements	67
References	67

**Jan Jerzy Sławianowski, Vasyl Kovalchuk, Agnieszka Martens,
Barbara Gołubowska and Ewa E. Rożko**

QUASICLASSICAL AND QUANTUM DYNAMICS OF SYSTEMS OF ANGULAR MOMENTA	70
1. Introduction	71
2. Group Algebras as Framework for Quantum-Mechanical Models with Symmetries	72
3. Quantum Mechanics on Lie Groups and Methods of Group Algebras	99
4. Group Algebra $\mathfrak{su}(2)$, Quantum Angular Momentum and Quasiclassical Asymptotics	122
Acknowledgements	153
References	154

CONTRIBUTIONS

Rosangela Canonico, Luca Parisi and Gaetano Vilasi

THE NEWMAN JANIS ALGORITHM: A REVIEW OF SOME RESULTS	159
--	------------

Maurice Courbage and Seyed Majid Saberi Fathi

A FORMULAE FOR THE SPECTRAL PROJECTIONS OF TIME OPERATOR	170
---	------------

Peter Djondjorov, Kostadin Kostadinov, Georgi Stoilov and Vassil Vassilev

MODELING OF STRESSES AND STRAINS IN CELL MEMBRANES SUBJECTED TO MICRO-INJECTION	178
--	------------

Tomasz Dobrowolski

GEOMETRY OF MINIMALLY DEFORMED VORTICES AND DOMAIN WALLS	186
---	------------

Stoil Donev and Maria Tashkova

CURVATURE FORMS AND INTERACTION OF FIELDS	197
---	------------

Bogdana Georgieva THE VARIATIONAL PRINCIPLE OF HERGLOZ AND RELATED RESULTS	214
Vesselin G. Gueorguiev and Jorge Dukelsky RICHARDSON-GAUDIN ALGEBRAS AND THE EXACT SOLUTIONS OF THE PROTON-NEUTRON PAIRING	226
Mariana Hadzhilazova, Ivailo Mladenov, Peter Djondjorov and Vassil Vassilev NEW PARAMETERIZATIONS OF THE CASSINIAN OVALS	237
Mari Iida and Akira Yoshioka STAR PRODUCTS AND APPLICATIONS	244
Osamu Ikawa MOTION OF CHARGED PARTICLES IN TWO-STEP NILPOTENT LIE GROUPS	252
Azniv Kasparian MODULAR FORMS ON BALL QUOTIENTS OF NON-POSITIVE KODAIRA DIMENSION	263
Luca Parisi and Rosangela Canonico MODIFIED COSMOLOGICAL EQUATIONS AND THE EINSTEIN STATIC UNIVERSE	290
Áurea Quintino CONSTANT MEAN CURVATURE SURFACES AT THE INTERSECTION OF INTEGRABLE GEOMETRIES	305
Nicola Sansonetto MONODROMY AND THE BOHR-SOMMERFELD GEOMETRIC QUANTIZATION	320

Gaetano Vilasi	
EINSTEIN METRICS WITH TWO-DIMENSIONAL KILLING LEAVES AND THEIR APPLICATIONS IN PHYSICS	329
Alexander B. Yanovski	
POISSON-NIJENHUIS STRUCTURE FOR GENERALIZED ZAKHAROV- SHABAT SYSTEM IN POLE GAUGE ON THE LIE ALGEBRA $\mathfrak{sl}(3, \mathbb{C})$...	342
<i>Subject Index</i>	355
<i>E-mail Addresses</i>	358