

Contents

Preface	ix
Address of Professor Krzysztof Maurin	xii
<i>G.A. Goldin</i>	
The Białowieża Workshop on Geometric Methods in Physics: An Impression of Three Extraordinary Decades	xiii
Part I: Quantization, Supergeometry and Representation Theory, the Scientific Legacy of Felix A. Berezin	
<i>A. Karabegov, Y. Neretin and T. Voronov</i>	
Felix Alexandrovich Berezin and His Work	3
<i>S. Twareque Ali</i>	
Some Non-standard Examples of Coherent States and Quantization	35
<i>S. Berceanu</i>	
Classical and Quantum Evolution on the Siegel-Jacobi Manifolds	43
<i>V.A. Dolgushev</i>	
Exhausting Formal Quantization Procedures	53
<i>S. Gindikin</i>	
On One Result of F. Berezin	63
<i>V.F. Molchanov</i>	
Berezin Quantization on Para-Hermitian Symmetric Spaces	71
<i>V.P. Palamodov</i>	
Remarks on Singular Symplectic Reduction and Quantization of the Angular Moment	81
<i>J.M. Rabin</i>	
Duality and the Abel Map for Complex Supercurves	91

<i>M. Schlichenmaier</i>	
Berezin's Coherent States, Symbols and Transform for Compact Kähler Manifolds	101
<i>J. Tosiek</i>	
Physically Acceptable Solutions of an Eigenvalue Equation in Deformation Quantization	117
<i>E.G. Vishnyakova</i>	
A Classification Theorem and a Spectral Sequence for a Locally Free Sheaf Cohomology of a Supermanifold	125
Part II: Foundations of Quantum Mechanics	
<i>D.J. Fernández C.</i>	
Bogdan Mielnik: Contributions to Quantum Control	135
<i>J.-P. Antoine</i>	
Partial Inner Product Spaces, a Unifying Language for Quantum Mechanics	157
<i>H. Baumgärtel</i>	
The Resonance-Decay Problem in Quantum Mechanics	165
<i>I. Bengtsson, S. Weis and K. Życzkowski</i>	
Geometry of the Set of Mixed Quantum States: An Apophatic Approach	175
<i>D. Bermúdez and D.J. Fernández C.</i>	
Solution Hierarchies for the Painlevé IV Equation	199
<i>A. Bohm and H.V. Bui</i>	
The Marvelous Consequences of Hardy Spaces in Quantum Physics	211
<i>S. Cruz y Cruz</i>	
Factorization Method and the Position-dependent Mass Problem	229
<i>G.A. Goldin</i>	
Quantum Configuration Spaces of Extended Objects, Diffeomorphism Group Representations and Exotic Statistics	239
<i>B. Mielnik</i>	
Convex Geometry: A Travel to the Limits of Our Knowledge	253

<i>M. Przanowski, M. Skulimowski and J. Tosiek</i>	
A Time of Arrival Operator on the Circle (Variations on Two Ideas)	265

<i>O. Rosas-Ortiz, S. Cruz y Cruz and N. Fernández-García</i>	
Negative Time Delay for Wave Reflection from a One-dimensional Semi-harmonic Well	275

Part III: Quantum Groups and Non-commutative Structures

<i>D. Chruściński and A. Kossakowski</i>	
Characterizing Non-Markovian Dynamics	285

<i>M.N. Hounkonnou and D.O. Samary</i>	
Deformation Quantization of a Harmonic Oscillator in a General Non-commutative Phase Space: Energy Spectrum in Relevant Representations	295

<i>B.K. Kwaśniewski</i>	
Uniqueness Property for C^* -algebras Given by Relations with Circular Symmetry	303

Part IV: General Methods

<i>C.A. Buell</i>	
On Maximal \mathbb{R} -split Tori Invariant under an Involution	313

<i>V. Dragović</i>	
Pencils of Conics as a Classification Code	323

<i>I. Hinterleitner and J. Mikeš</i>	
Geodesic Mappings and Einstein Spaces	331

<i>R.S. Ismagilov</i>	
Racah Operators	337

<i>J. Jurkowski</i>	
q -discord for Generalized Entropy Functions	343

<i>S. Leble</i>	
Pseudopotentials via Moutard Transformations and Differential Geometry	349

<i>K. Mackenzie</i>	
Proving the Jacobi Identity the Hard Way	357

<i>I. Markina and A. Vasil'ev</i>	
Löwner-Kufarev Evolution in the Segal-Wilson Grassmannian	367
<i>J. Mikeš, S. Stepanov and M. Jukl</i>	
The pre-Maxwell Equations	377
<i>I.M. Mladenov, M.T. Hadzhilazova, P.A. Djondjorov and V.M. Vassilev</i>	
Serret's Curves, their Generalization and Explicit Parametrizations	383
<i>A. Sergeev</i>	
Harmonic Spheres Conjecture	391
<i>O.K. Sheinman</i>	
Lax Equations and the Knizhnik-Zamolodchikov Connection	405
<i>S.A. Stepin</i>	
Short-time Asymptotics for Semigroups of Diffusion Type and Beyond	415
Part V: Special Talk by Bogdan Mielnik	
<i>B. Mielnik</i>	
Bureaucratic World: Is it Unavoidable?	425