Table of contents

* Plenary speaker

Pragmatism and virtuosity,	
by N.L. Balazs*	1
q-ALGEBRAS AND QUANTUM GROUPS	
New aspects of differential calculus on quantum groups, by D.P. Zhelobenko'	
Differential calculus on quantum spheres,	7
	L3
Conditionally invariant <i>q</i> -d'Alembert equation,	
by V.K. Dorry	L6
Quantum orthogonal Caley-Klein groups and algebras,	
by N.A. Gromov, I.V. Kostyakov, and V.V. Kuratov	L9
A remarkable connection between Yangians and finite W-algebras,	
by E. Ragoucy and P. Sorba. I	22
Two-parameter deformations of loop algebras and superalgebras,	
by V.N. Tolstor	5
q-deforming maps for Lie group covariant Heisenberg algebras, by G. Fiore	28
q-oscillator representations of quantum matrices and braided matrices,	.0
.*	31
Representations and tensor operators for Jordanian quantum algebras,	_
by N. Aizawa.	4
Geometry of quantum homogeneous supervector bundles and representation theory of quantum general linear supergroup,	
	37
Unitary representations and BRST structure of the quantum	,,
anti-de Sitter group at roots of unity,	
by H. STEINACKER	0
Deformation of SUSY quantum mechanics as relativistic effect,	
byR.M. Mir-Kasimov	3

Braided Poincaré group and free particle, by S. ZAKRZEWSKI	.46
The toy model of nonrelativistic quantum spacetime symmetry, by P. Kosinski and P. MASLANKA	49
Discretizations of the Schrödinger equation with quantum algebra symmetry,	
by A. Ballesteros, F.J. Herranz, and P. Parashar	52
On the integrability of q-oscillators based on invariants of discrete Fourier transforms,	
by A. Ruffing	. 55
Coloured Hopf algebras and their duals,	
by C. Quesne · · · · ·	. 57
Integrable multiparametric spin chains,	
by A. Foeflster, J. Links, and I. Roditi	60
On the construction of closed integrable chains with quantum symmetry,	
by J. Links and A. Foerster	63
q-deformed entropies and Fisher metrics,	
by S. Abe	. 66
Multimode displacement relations and q-boson squeezed states,	
by R.J. McDermott and W.S. Chung	69
Understanding wavelets and possible applications in nuclear physics,	
by A. Ludu* and J.P. Draayer	72
ALGEBRAS AND GROUPS: MATHEMATICAL	
DEVELOPMENTS AND PHYSICAL APPLICATIONS	
Spontaneously broken symmetries,	
by H. Narnhofer and W. Thirring.	81
Branching rules for $SO(n) \supset SO(n-2) \times U(1)$,	
by M. Thoma and R.T. Sharp	82
Weyl orbit-orbit bran ching rules for affine Lie algebras: an example $C_{m+n}^{(1)} \downarrow C_m^{(1)} \oplus C_n^{(1)}$,	
by M. Thoma and R.T. Sharp	85
Graded contractions of Lie algebras and some applications,	
by M. de Montigny	88

Graded contractions of the C_n algebras with respect to their reductive subalgebras of maximal rank,	
by H.DE GUISEandJ.PATERA	91
Scaling invariances of quasicrystalline sets, by Z. Masáková, E. Pelantová, and J. Patera	94
Group theoretical basis for some transformations of generalized hyper- geometric series and the symmetries of the 3-j and 6-j coefficients, by K. Srinivasa Rao, HD. Doebner, and P. Nattermann	97
The central characters of the symmetric group as formal polynomials: class-algebraic applications,	51
by J. Katriel 1	00
Jones matrices and Stokes parameters as representations of the Lorentz group,	
by Y.S. Ki M	103
Spannors on de Sitter space,	
3	106
New examples of contact transformations in thermodynamics,	100
by R. Mrugala	109
Coherent states and square integrable representations, by S.T. Au	112
	112
Kronecker products of projective representations of translation groups, by W. Florek	115
Bloch and Wannier functions related to oscillator eigenfunctions,	
by P. Zeiner, R. Dirl. and B.L. Davies	118
An algebraic model to describe vibrational excitations in periodic	
systems,	
bу R. Lемиs	121
On an interacting boson model in O*-algebra framework,	
by H. Ogi and A. INOUE	124
Microscopic aspects of the heavy clusterization in ²⁵² Cf,	
by A. Algora, J. Cseh, and P.O. Hess	127
A mass formula for hypernuclei,	100
by J. Cseh, G. LÉVAI, P. VAN ISACKER, and O. JUILLET	130
Geometrical relation of the semimicroscopic algebraic cluster model,	139

Vibrational spectra of C_{60} -based fullerenes,	
by M.N. Angelova	136
Non-relativistic Hartree-Fock energy spectra in icosahedral symmetry molecules with electronic configuration h^2 ,	
by J.M. OLIVA	139
Difference/differential equations AND THEIR SYMMETRIES	
The perturbative scheme for discrete equations, by S. Labrunie	145
Finite difference equations and factorization method, by Yu. F. SMIRNOV	148
New conformally-invariant nonlinear wave equations,	
by O.V. Roman On integrability of systems of ODEs by quadratures and stationary solitonic hierarchies,	151
	154
Topology, Geometry, Classical AND QUANTUM FIELD THEORY	
On Wigner's "Unreasonable effectiveness of mathematics in the natural sciences", $\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	
by R.N. Sen	159
On some categorical constructions in mathematical physics, by S.S. Moskaliuk and A.T. VLASSOV	162
SU(1 1) quantum dissipation and topologically massive gauge theories, by M. BLASONE, G. VITIELLO, and O.K. PASHAEV	165
Determinant anomalies,	
ÿ	168
Noncommutative differential geometry in the χ formalism and the Higgs boson mass,	
	171
On a linear and exact set of equations for the gravitational field, by E. Salinas	. 174
DY L. DALINAS !!!!!!!	

Wheeler-Feynman interaction in an approximation without characteristic integrals, by J. Weiss
Forced kink of $\lambda \phi^4$ model, by Ya.M. Shnir
Symmetry properties of self-dual fields, by D.P. SOROKIN
Multi-loop scalar amplitudes from closed bosonic string, by K. ROLAND and HT. Sato
Algebra of conserved generators in the generalized quantum dynamics of noncommutative grarded quantum fields, by S.L. Adler and L.P. Horwitz
Wigner functions in curved spacetimes and deformation quantisation of constrained systems. by F. Antonsen
The Thiemann transform as a generalization of the Wick rotation for gravity, by G.A. Mena Marugán
Grand unified theories and gravity in generalized covariant derivative formalism, by I.S. SOGAMI and H. TANAKA
Vacuum radiation in comformally invariant quantum field theory, by V. Aldaya, M. Calixto, and J.M. Cerveró
Diffeomorphism groups: and the field theory of anyons, by G.A. GOLDIN
Realizations of physica particle states via cohomologies: algebraization of BRST-BFV covariant quantization, by P.D. Jarvis, A.J. Bracken, S.P. Corney, and I. Tsohantjis 207
Background dependence of Green functions for massive gauge theories, by B. Geyer and D. Mülsch
Massless fields and Wigner classification, by RK. Loide, I. Ots, and R. Saar
Charge superselection sectors for QED on the lattice, by I Knowski and G. Rupol Ph. 216

Supersymmetry and integrable systems

Local supersymmetry, absence of superpartners, and nonclassical geometries, by F. Mansouri
On SUSY models with discrete moduli space, by L.J. Boyal and J. Casahorran
Wigner induced representations method and Poincaré parasuperalgebra, by A.G. Nikitin
A completely integrable Hamiltonian from a quantum deformation of (1+1) Poincark algebra, by A. Ballesteros and O. Ragnisco
Quantum superintegrable Hamiltonian systems, by J.A. Calzada, J. Negro, and M.A. del Olmo
Supersymmetry, exactly solvable problems, and non-linear algebras, by G. Junker and P. Roy
Simultaneous generalization of the Coulomb and harmonic oscillator potentials, by G. Lévai
On the nonlinear Higgs algebra and its specific interests, by J. Beckers and N. DEBERGH
Supersymmetries of Schrödinger equations and generalized Darboux transformations,
bу С. Go т т I
Supersolitonic solutions for the $N=2$ super-KdV equation, by M.A. Ayarı and V. Hussin
Integrable hierarchies in the Drinfeld-Sokolov approach, by L. Fehér, F. Delduc, and L. Gallot
Lie superalgebras and the multiplet structure of the genetic code, by S. SACHSE and M. FORGER
Lie superalgebras of differential operators and quasi-exactly solvable systems, by F. Finkel. A. González-López and M.A. Rodríguez

The Lie algebraic structure of differential operators preserving polynomial spaces,
by F. Finkel and N. Kamran
RANDOM MATRICES AND QUANTUM CHAOS
Chaotic dynamics, random matrices, random polynomials, by О. Вонідав* 265
Quantum nonergodic behaviour and Wigner band random matrices, by G. CASATI'
New applications of random matrix theory: elastomechanics and quantum chromodynamics,
by T. Guhr*
Fluctuation properties of nuclear levels and transitions, by G.E. MITCHELL* and J.F. Shriner, Jr
Intermediate level statistics with one-parameter random matrix ensembles,
by H. Hasegawa and JZ. Ma
Localized electromagnetic waves in random distributions of dielectric particles,
by A. Orlowskii and M. Rusek
Resonances as eigenvalues of non-Hermitian random matrices, by Y.V. Fyodorov and HJ. Sommers
Chaotic scattering in the presence of resonances, by B. Elattari, V. Kagalovsky, and H.A. Weidenmüller 290
QUANTIZATION, PHASE SPACE FORMALISMS AND SEMICLASSICAL METHODS
Quantization on manifolds diffeomorphic to S^D and induced gauge potentials,
by Y. Ohnuki
Relation of the induced gauge field in the confining potential approach to other ones on curved manifolds,
by K. Fujii, N. Ogawa, and S. Uchiyama
Quantization of a particle in a background Yang-Mills field,

Quantization of magnetic top in terms of spinors,
by M. BOZIC and D. Arsenović!
Mesoscopic quantum circuit theory to persistent current and Coulomb blockade,
by YQ. L
Elementary particles and twistor phase space dynamics,
by A. Bette
Phase space distributions and Schrödinger cat states for a collection
of atoms,
by G.S. Agarwal ¹
Quantum carpets and Wigner functions,
by I. Marzoli, O.M. Friesch, and W.P. Schleich*
Reconstructing the Wigner function of an inner state,
by P. Tombesi*
Radon transform of the Wigner quasiprobability,
by A. W~nsche
Photon counting sampling of phase space,
by K. Banaszek and K. Wódkiewicz
Joint Wigner function for the Jaynes-Cummings model,
by A. Czirján and M.G. Benedict
Wigner functions for interacting Bose-Einstein condensates,
by H. WALLIS
Quantum Wigner dynamics with Pauli exclusion principle,
by G. Kaniadakis, A. Lavagno, and P. Quarati
Wigner function formalism in the kinetic theory of the polaron-like
systems,
by A.V. Soldatov and J. Seke
Diffusion and friction coefficients in equation for Wigner distribution
function,
by G.G. Adamian N.V. Antonenko, and W. SCHEID 355
A quantum/classical entropy concept for measuring phase space
localization, by B. Mirrach and H.J. Korsch
Time-dependent integrals of motion and positive-distribution
description for even and odd Schrödinger cats,
by V.I. MAN'KO
-, ·

Phase space trajectory description of quantum dynamics,
by HW. Lee 364
Wigner function description of Larmor interferometry,
by M. Stopa and H. Rauch.
Wigner distributions for some dynamical models,
by K.B. Wolf, N.M. Atakishiyev, and S.M. Chumakov
Phase space tomography associated with the Weyl-Galileo group,
by J. Bertrand and P. Bertrand
Wigner transforms and their application to semiclassical
/homogenization limits,
by N.J. Mauser'
A mathematical approach of semiclassical "trace formulae",
by M. Combescure
The Heisenberg correspondence principle. When does it hold?
by P. Kasperkovitz and M. Peev
Quantum description of nonlinearly coupled oscillators via classical
trajectories,
by A. Bandilla, G. DrobnY, and I. Jex
Wigner transform and quantum-like corrections for charged-particle
beam transport,
by R. Fedele and V.I. Man'ro
Time-frequency analysis in laser-atom interactions,
by JP. Antoine, Ph. Antoine, and B. Piraux
Quantal dynamics on non-compact groups, by N. Krausz and M.S. Marinov
A non-linear quasi-spin dynamics and new quasiclassical approximations in models of quantum optics,
by V.P. Karassiov
Global structure of Stokes graphs and exactness of conventional and
supersymmetric JWKB formulae,
by SI Giller and P. Milczarski
QUANTUM OPTICS AND INFORMATION
The construction and detection of non-classical states in quantum
optics,
hv P1. Kvrpsry*

by S. Mancini, P. Tombesi, and V.I. MAN'KO
Tomography of a trapped ion,
by O.V. Man'ko
Partial reconstruction of quantum states via the Jaynes principle-of
maximum entropy,
by G. Adam, V. Bužek, and G. DROBNY
Squeezing in Raman lasers,
by A. Eschmann and R.J. BALLAGH
Creation of maximally entangled pairs of atoms over a noisy channel: a finite-means approach,
by HJ. Briegel, J.I. Cirac, and P. Zoller'
Decoherence control in optical cavities,
by D. Vitali
Flocks of quantum clones,
by V. Bužek and M. Hillery
FUNDAMENTAL ASPECTS OF QUANTUM THEORIES
Causality and the "tunneling time" for wave packets,
by M.S. Marinov*
Tunneling time through a static rectangular barrier,
by H. Mori and K. Shima
Classical spin contribution to the tunnel effect,
by M. Rivas
Algebraic definition of quantum statistics,
by E. Celeghini
Towards even and odd squeezed number states,
by M.M. N IETO
Revivals of quantum wave packets,
by R. Bluhm, V.A. Kostelecky, J.A. Porter, and B. Tudose 456
Accidental degeneracy and topological phase of resonant states,
by A. Mondragón and E. Hernández459
Anharmonic effects in the temporal evolution of quantum states in
Paul traps,
by J. RECAMIER and R. JAUREGUI

A variational theorem for the eigenvalues of N-particle Dirac-like Hamiltonians,	
y R. Jauregui, C.F. Bunge, and E. Ley-Koo	465
The Hamiltonian for a relativistic particle with arbitrary spin in a central potential,	
by M. Moshinsky	468
Variational spectra of relativistic oscillator of arbitrary spin,	
by A. Sharma and V. RIQUER	471
Variational spectra of the relativistic Coulomb problem,	
by V. Riquer and A. SHARMA	474
Monte Carlo simulation of short-time critical dynamics for the XY-model,	
by L. Schülke, B. Zheng, K. Okano, and K. YAMAGISHI	477
Remarks on a nonlinear quantum theory,	
by HD. Doebner	480
Remarks on wave-particle duality,	
by S. Kamefuchi	484
Particle position and probability wave in relativistic quantum field	
theory,	
by K. Odaka	487
Recent results on UV-regularisation through UV-modified uncertainty relations,	
by A. Kempf	490
Einstein-de Broglie relations on the lattice,	
by M. Lorente	493
Solution of the renormalization problem in nonrelativistic QED,	
by J. Seke	496
Electrodynamics of confined atoms and sonoluminescence,	
by C. Villarreal , R. Jauregui , and R. Esquivel-Sirvent	499
Casimir's entropy,	
by M. Revzen and A. Mann	502
Observers in algebraic quantum field theory,	
by M. Keyl	503
Unruh-DeWittl detector nonlinearly coupled to a scalar field,	
by N CHTIET	506

Optical parametric displacement transducer with pump wave in a
squeezed state,
by V.V. Kulagin
Duration of the quantum "Zeno" region for an excited state of the
hydrogen atom,
by S. Pascazio and P. Facchi
Tests of complete positivity in the neutral kaon system,
by F. Benatti and R. Floreanini
Uncertainties of observables and decoherence of quantum states,
by T. Kobayashi
Wigner function and decoherence,
by C. Kieffer
Temporal Bell inequalities in bistable systems,
by T. Calarco
Einstein-Podolsky-Rosen interactions between four entangled particles,
by S. Hacyan
Bell's inequality, statistical mechanics and superconductivity,
by P. O'Hara530
Aspect's experiment. does not violate Bell's inequality,
by R. Risco-Delgado533
Tests of quantum mechanics and Bell's inequalities,
by S.J. Freedman*
Berkeley's model of the universe and the genesis of the principles of
quantum theory,
by Z. Jacyna-Onyszkiewicz
Author index