

Physics and Mathematics of Nonlinear Phenomena

(PMNP 2013)

Journal of Physics: Conference Series Volume 482

**Gallipoli, Italy
22-29 June 2013**

**ISBN: 978-1-63266-709-0
ISSN: 1742-6588**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by the Institute of Physics
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Symmetric Coupling of Angular Momenta, Quadratic Algebras and Discrete Polynomials	1
<i>V. Aquilanti, D. Marinelli, A. Marzuoli</i>	
Higher Symmetries of Cotangent Coverings for Lax-integrable Multi-dimensional Partial Differential Equations and Lagrangian Deformations	11
<i>H. Baran, I.S. Krasil'shchik, O.I. Morozov, P. Vojcak</i>	
Towards the Dressing Phase in the $AdS_3=CFT_2$ Duality	21
<i>M. Beccaria, G. Macorini</i>	
SU(3) Magnet: Nite-gap Integration on the Lowest Genus Curve	28
<i>Julia Bernatska, Petro Holod</i>	
Projective Differential Geometry of Multidimensional Dispersionless Integrable Hierarchies	38
<i>L.V. Bogdanov, B.G. Konopelchenko</i>	
On Variational Formulations and Conservation Laws for Incompressible 2D Euler Fluids	46
<i>R. Camassa, G. Falqui, G. Ortenzi, M. Pedroni</i>	
KP Web-solitons from Wave Patterns: An Inverse Problem	56
<i>Sarbarish Chakravarty, Yuji Kodama</i>	
About the Quasi Steady State Approximation for a Reaction Diffusion System Describing a Chain of Irreversible Chemical Reactions	67
<i>F. Conforto, L. Desvillettes</i>	
Integrable Multi-Phase Thermodynamic Systems and Tsallis' Composition Rule	75
<i>G. De Nittis, P. Lorenzoni, A. Moro</i>	
KdV Soliton Interactions: A Tropical View	83
<i>A. Dimakis, F. Muller-Hoissen</i>	
About Linear Superpositions of Special Exact Solutions of Nizhnik-Veselov-Novikov Equation	93
<i>V.G. Dubrovsky, A.V. Topovsky</i>	
Nonlinear Interaction of the Concentrated Waves	105
<i>V. Eremenko, N. Manaenkova</i>	
Self-Modulation of a Relativistic Charged-Particle Beam as <i>Thermal Matter Wave</i> Envelope	113
<i>R. Fedele, D. Jovanovic, S. De Nicola, A. Mannan, F. Tanjia</i>	
Perturbative and Exact Results on the Neumann Value for the Nonlinear Schrodinger on the Half-line	123
<i>A.S. Fokas, J. Lenells</i>	
Higher Order Peregrine Breathers, Their Deformations and Multi-Rogue Waves	133
<i>P. Gaillard</i>	
Riemann-Hilbert Problems, Families of Commuting Operators and Soliton Equations	140
<i>V.S. Gerdjikovy, A.B. Yanovski</i>	
Euler-Poincare Equations for G-Strands	151
<i>Darryl D. Holm, Rossen I. Ivanov</i>	
Stability Under Persistent Perturbation by White Noise	160
<i>L. Kalyakin</i>	
On Effective Solutions of the Nonlinear Schrodinger Equation	167
<i>N. Khatiashvili, R. Shanidze, D. Janjgava</i>	
Gardner's Deformations As Generators of New Integrable Systems	172
<i>Arthemey V. Kiselev, Andrey O. Krutov</i>	
Novel Hierarchies & Hidden Dimensions in Integrable Field Models: Theory & Application	178
<i>Anjan Kundu</i>	
Quantum Corrections to Quasi-Periodic Solution of Sine-Gordon Model and Periodic Solution of ϕ^4 Model	187
<i>G. Kwiatkowski, S. Leble</i>	
Nonlinear Nuclear Equation of State and Thermodynamical Instabilities in Warm and Dense Nuclear Matter	195
<i>A. Lavagno, G. Gervino, D. Pigato</i>	
Integrable Zero-Range Potentials in a Plane	203
<i>S. Leble</i>	
Resonant Dispersive Benney and Broer-Kaup Systems in 2+1 Dimensions	213
<i>Jyh-Hao Lee, Oktay K. Pashaev</i>	
A Macroscopic System with Undamped Periodic Compressional Oscillations	223
<i>F. Leyvraz, F. Calogero</i>	

Haantjes Manifolds	233
<i>F. Magri</i>	
Integrable Dispersionless PDEs Arising As Commutation Condition of Pairs of Vector Fields	244
<i>S.V. Manakov, P.M. Santini</i>	
Ring Localized Structures in Nonlinear Shallow Water Wave Dynamics	255
<i>A. Maman, R. Fedele, M. Onorato, S. De Nicola, D. Jovanovic</i>	
Magnetic Domains and Waves in the Skyrme - Faddeev Model	265
<i>L. Martina, M.V. Pavlov</i>	
Spectral Realization of the Riemann Zeros by Quantizing $H = w(x)(p + \ell_p^2/p)$: The Lie-Noether Symmetry Approach	274
<i>M.C. Nucci</i>	
Two-Circles Theorem, q-Periodic Functions and Entangled Qubit States	284
<i>Oktay K. Pashaev</i>	
Complete Bifurcation Analysis of DC-DC Converters Under Current Mode Control	295
<i>D. Pikulin</i>	
Topological phase states of the $SU(3)$ QCD	304
<i>Alexander P. Protogenov, Evgueni V. Chulkov, Jeffrey C.Y. Teo</i>	
New Exact Solutions for a Coupled KdV-Like Model	311
<i>Marianna Ruggieri, Maria Paola Speciale</i>	
Conservation Laws for a Model Derived from Two Layer-Fluids	317
<i>Marianna Ruggieri, Maria Paola Speciale</i>	
Building Generalized Lax Integrable KdV and MKdV Equations with Spatiotemporally Varying Coefficients	327
<i>M. Russo, S.R. Choudhury</i>	
Asymptotic Behavior of a Generalized Burgers Equation Solutions on a Finite Interval	335
<i>Alexey Samokhin</i>	
On Singular Elliptic Equations Involving Critical Sobolev Exponent	343
<i>K. Tahri</i>	
Modified Melting Crystal Model and Ablowitz-Ladik Hierarchy	350
<i>Kanehisa Takasaki</i>	
Generalized Lenard Chains and Multi-separability of the Smorodinsky-Winternitz System	360
<i>Giorgio Tondo</i>	
On Integrability of $D0$-Brane Equations on $AdS_4 \times CP^3$ Superbackground	370
<i>D.V. Uvarov</i>	
Remarks on Quadratic Bundles Related to Hermitian Symmetric Spaces	378
<i>Tihomir Valchev</i>	
Kink-Antikink Scattering in φ^4 and φ^6 Models	388
<i>H. Weigel</i>	
Laboratory Realization of KP-solitons	397
<i>Harry Yeh, Wenwen Li</i>	
Quantum Gaudin Model and Classical KP Hierarchy	407
<i>A. Zabrodin</i>	
Author Index	