

22nd International Laser Physics Workshop

(LPHYS'13)

Journal of Physics: Conference Series Volume 497

**Prague, Czech Republic
15 – 19 Jun 2013**

**ISBN: 978-1-63266-722-9
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

Recent Developments in Femtosecond Filamentation	1
<i>A. Houard, Y. Liu, A. Mysyrowicz</i>	
Spin Turbulence In Spinor Bose-Einstein Condensates	19
<i>M. Tsubota, K. Fujimoto</i>	
Ultrabroadband Airy Light Bullets	26
<i>P. Piksarv, A. Valdmann, H. Valtna-Lukner, P. Saari</i>	
Measuring Vibrational Coherence Lifetimes In Liquid Methanol Using Transient Coherent Raman Scattering	37
<i>S. Meiselman, O. Cohen, M. DeCamp, V. Lorenz</i>	
Two-Quantum Photon-Phonon Laser	43
<i>A. Zadernovsky</i>	
Magneto-Optical Effects And Rf Magnetic Field Detection In Cold Rubidium Atoms	55
<i>K. Sycz, A. Wojciechowski, W. Gawlik</i>	
Light Controlling Light in a Coupled Cavity-atom System	62
<i>B. Zou, Z. Tan, Y. Zhu</i>	
Nonlinear and Quantum Optics with Liquid Crystals	75
<i>S. Lukishova</i>	
A Comparison Of The Laser Performance Of Yb³⁺:LuAG Crystals With Different Doping Levels	92
<i>A. Pirri, M. Vannini, V. Babin, M. Nikl, G. Toci</i>	
High Power Diode Laser Remelting of Metals	97
<i>H. Chmelickova, J. Tomastik, R. Ctvrtlik, J. Supik, S. Nemecek, M. Misek</i>	
Multiline Generation Capabilities Of Diode-Pumped Nd:YAP And Nd:YAG Lasers	105
<i>M. Fibrich, T. Hambalek, M. Nemecek, J. Sulc, H. Jelinkova</i>	
Increasing The Laser Damage Threshold Of The Nd:YAG Crystal By The Color Center Annihilation	111
<i>S. Panahibakhsh, S. Jelvani, M. Jaber, M. Mollabashi, M. Maleki</i>	
Thermal Lens Measurements in Yb-doped YAG, LuAG, Lu₂O₃, Sc₂O₃ Ceramic Lasers	117
<i>A. Pirri, G. Toci, M. Ciofini, A. Lapucci, L. Gizzi, L. Labate, L. Esposito, J. Hostasa, M. Vannini</i>	
Molecular Attosecond Photoionization with Few Cycle XUV Laser Pulses	122
<i>K. Yuan, A. Bandrauk</i>	
Novel Aspects Of Radiation Reaction In The Classical And The Quantum Regime	131
<i>N. Neitz, N. Kumar, F. Mackenroth, K. Hatsagortsyan, C. Keitel, A. Piazza</i>	
Breit-Wheeler Pair Creation by Finite Laser Pulses	144
<i>K. Krajewska, J. Kaminski</i>	
Interaction Of A Classical Laser Field With A Model Rydberg Atom In A Mixed State Prepared By Entanglement With Few-Photon Quantum Light	151
<i>P. Sharapova, O. Tikhonova</i>	
Ionization And Entanglement Of Two Interacting Rydberg Atoms In A Strong Laser Field	159
<i>I. Burenkov, O. Tikhonova</i>	
Shape Effects In Nonlinear Thomson And Compton Processes	172
<i>M. Twardy, K. Krajewska, J. Kaminski</i>	
Nonlinear Bethe-Heitler Pair Creation in an Intense Two-Mode Laser Field	182
<i>S. Augustin, C. Muller</i>	
Silver Doped Metal Layers For Medical Applications	194
<i>T. Kocourek, M. Jelinek, J. Miksovsky, K. Jurek, M. Weiserova</i>	
Assessment of the Suitability of Excimer Lasers in Treating Onychomycosis	203
<i>J. Kymplova, M. Jelinek, J. Urzova, J. Miksovsky, K. Dusek, L. Bauerova</i>	
Self-Similar Shape Mode Of Optical Pulse Propagation In Defocusing Medium With Two-Photon Absorption	216
<i>V. Trofimov, I. Zakharova, M. Fedotov</i>	
Strong Coupling Study Of Spin-1 Bosons In Square And Triangular Optical Lattices	225
<i>T. Kimura</i>	
Vortices in the Two-dimensional Dipolar Bose Gas	238
<i>B. Mulkerin, D. O'Dell, A. Martin, N. Parker</i>	
Fermionic Condensation In Ultracold Atoms, Nuclear Matter And Neutron Stars	249
<i>L. Salasnich</i>	
Resonances In Ultracold Collisions Confined By Atomic Traps	258
<i>V. Melezhik</i>	

Collective Modes Of Three- And Two-Dimensional Trapped Fermi Gases In The Normal Phase	265
<i>M. Urban, S. Chiacchiera, D. Davesne, T. Enss, P. Pantel</i>	
A Phenomenological Model of the Growth of Two-Species Atomic Bose-Einstein Condensates	273
<i>R. Pattinson, N. Parker, N. Proukakis</i>	
Exact Quantum Dynamics Of Yrast States In The Finite 1D Bose Gas	281
<i>E. Kaminishi, J. Sato, T. Deguchi</i>	
Strongly Correlated Excitation Of A Quasi-1D Rydberg Gas	290
<i>N. Malossi, M. Valado, S. Scotto, O. Morsch, E. Arimondo, D. Ciampini</i>	
Dynamical Entanglement in Coupled Systems	297
<i>K. Ziegler</i>	
Entangling Two Distinguishable Quantum Bright Solitons Via Collisions	309
<i>T. Billam, C. Blackley, B. Gertjerenken, S. Cornish, C. Weiss</i>	
Quantum Probabilities And Entanglement For Multimode Quantum Systems	317
<i>V. Yukalov, E. Yukalova, D. Sornette</i>	
Propagation Of Collective Modes In Non-Overlapping Dipolar Bose-Einstein Condensates	328
<i>A. Gallemi, M. Guilleumas, R. Mayol, M. Pi</i>	
Numerical Studies On Vortices In Rotating Dipolar Bose-Einstein Condensates	338
<i>R. Kumar, P. Muruganandam</i>	
LDPC Coding for QKD at Higher Photon Flux Levels Based on Spatial Entanglement of Twin beams in PDC	347
<i>F. Daneshgaran, M. Mondin, I. Bari</i>	
Properties Of Thermoelectric $\text{Ce}_{0.09}\text{Fe}_{0.67}\text{Co}_{3.33}\text{Sb}_{12}/\text{FeSb}_2\text{Te}$ Multi-Layered Structures Prepared By Laser Ablation	355
<i>R. Zeipl, M. Jelinek, M. Vlcek, T. Kocourek, J. Walachova</i>	
Schwinger Pair Creation In Constant And Time-Dependent Fields	365
<i>A. Huet, S. Kim, C. Schubert</i>	
Author Index	