

# **12th Conference on Theoretical Nuclear Physics in Italy 2008**

**Journal of Physics: Conference Series Volume 168**

**Cortona, Italy  
8-10 October 2008**

**ISBN: 978-1-61738-315-1**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571  
[www.proceedings.com](http://www.proceedings.com)

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

Copyright© (2008) by the Institute of Physics  
All rights reserved.

Printed by Curran Associates, Inc. (2010)

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](mailto:techtracking@iop.org)

# TABLE OF CONTENTS

## FEW-NUCLEON SYSTEMS

<b>Few-nucleon Physics</b> .....	1
<i>Winfried Leidemann</i>	
<b>Light-front Projections of the Bethe-salpeter Amplitude and the 4D Electromagnetic Current for an Interacting Two-fermion System</b> .....	21
<i>T Frederico, J A O Marinho, E Pace, G Salmè</i>	
<b>Hadronic Parity Violation in Few-body Systems</b> .....	29
<i>L Girlanda, R Schiavilla, M Viviani, A Kievsky, L E Marcucci</i>	
<b>Three-nucleon Force Study in <math>A = 3,4</math> Systems</b> .....	37
<i>A Kievsky, S Rosati, M Viviani, L E Marcucci, L Girlanda</i>	
<b><math>N - d</math> Elastic Scattering at Low-energies with Local and Non-local Realistic Nuclear Interactions</b> .....	45
<i>L E Marcucci, L Girlanda, A Kievsky, S Rosati, M Viviani</i>	

## NUCLEAR MATTER AND NUCLEAR DYNAMICS

<b>Nuclear Matter and Nuclear Dynamics</b> .....	53
<i>M Colonna</i>	
<b>Scale and Chiral Symmetry in a Effective Lagrangian for Nuclear Physics</b> .....	73
<i>Luca Bonanno, Alessandro Drago</i>	
<b>Magnetic Fields Generated by R-modes in Accreting Millisecond Pulsars</b> .....	81
<i>Carmine Cuofano, Alessandro Drago</i>	

## NUCLEAR STRUCTURE

<b>Nuclear Structure</b> .....	87
<i>Silvia M Lenzi</i>	
<b>Relativistic Models for Nuclear Structure and Low-energy QCD Phenomenology</b> .....	103
<i>P Finelli</i>	
<b>Remarks on Shape Phase Transitions in Nuclei</b> .....	111
<i>L Fortunato, A Vitturi, C E Alonso, J M Arias</i>	
<b>Collective Excitations in Metallic Clusters Within the Second Random Phase Approximation</b> .....	117
<i>D Gambacurta, F Catara</i>	
<b>Shell-model Calculations in <math>^{132}\text{Sn}</math> and <math>^{208}\text{Pb}</math> Regions with Low-momentum Interactions</b> .....	125
<i>A Gargano, L Coraggio, A Covello, N Itaco</i>	
<b>Pygmy Resonances in Sn Isotopes Within a Microscopic Multiphonon Approach</b> .....	132
<i>E G Lanza, M V Andrés, F Catara, Ph Chomaz, D Gambacurta</i>	
<b>Spatial Dependence of the Pairing Field Calculated with Bare and Induced Interactions</b> .....	140
<i>A Pastore, F Barranco, R A Broglia, E Vigezzi</i>	

## NUCLEAR PHYSICS WITH ELECTROWEAK PROBES

<b>Nuclear Physics with Electroweak Probes</b> .....	148
<i>Omar Benhar</i>	
<b>Weak Response of Nuclear Matter at Low Momentum Transfer</b> .....	164
<i>Nicola Farina</i>	
<b>Effective Nucleon-nucleon Interaction and Low-lying Nuclear Magnetic States</b> .....	172
<i>C Maieron, V De Donno, G Co', M Anguiano, A M Lallena, M Moreno Torres</i>	

## STRUCTURE OF HADRONS AND HADRONIC MATTER

<b>Hadron Structure and Hadronic Matter</b> .....	180
<i>Elena Santopinto</i>	

<b>Transverse-momentum-dependent Parton Distributions in a Spectator Diquark Model</b> .....	199
<i>F Conti, A Bacchetta, M Radici</i>	
<b>Monte Carlo Simulations of QCD Thermodynamics in the PNJL Model</b> .....	207
<i>M Cristoforetti, T Hell, W Weise</i>	

**SPECIAL TOPICS**

<b>The SPES Project: an ISOL Facility for Exotic Beams</b> .....	215
<i>G Prete, A Andrichetto, L Biassetto, M Manzolaro, F Gramegna, A Lombardi, A Pisent, J Esposito, E Fagotti, M Cinausero, P Mastinu, L Calabretta</i>	
<b>EURISOL: An European Isotope Separation On-line Radioactive Ion Beam Facility</b> .....	220
<i>A Bonaccorso, G Prete</i>	
<b>Generation IV Nuclear Energy Systems and the Need of Accurate Nuclear Data</b> .....	235
<i>N Colonna</i>	
<b>Author Index</b>	