

HNPS Advances in Nuclear Physics

Vol 13 (2004)

HNPS2004



Editorial Comments and Symposium Info

/ Editorial Team

doi: [10.12681/hnps.2945](https://doi.org/10.12681/hnps.2945)

To cite this article:

Editorial Team, /. (2020). Editorial Comments and Symposium Info. *HNPS Advances in Nuclear Physics*, 13, i-viii.
<https://doi.org/10.12681/hnps.2945>

HELLENIC NUCLEAR PHYSICS SOCIETY

PROCEEDINGS

14th HELLENIC SYMPOSIUM

ON

NUCLEAR PHYSICS



NATIONAL TECHNICAL UNIVERSITY OF ATHENS

21 & 22 MAY 2004

SPONSORS

- NATIONAL TECHNICAL UNIVERSITY OF ATHENS
- MINISTRY OF EDUCATION
- HELLENIC NUCLEAR PHYSICS SOCIETY

HELLENIC NUCLEAR PHYSICS SOCIETY

GOVERNING BOARD

- S. HARISSOPOULOS (PRESIDENT)
- R. VLASTOU (VICE PRESIDENT)
- D. BONATSOS (SECRETARY)
- S. STYLIARIS (TREASURER)
- G.A. LALAZISSIS

ORGANIZING COMMITTEE - EDITORS

- | | |
|---------------------|------|
| • R. VLASTOU | NTUA |
| • M. KOKKORIS | NTUA |
| • C.T. PAPADOPOULOS | NTUA |

PUBLICATIONS "SYMMETRIA"
IOANNOU THEOLOGOU 80, ZOGRAFU
TEL. 210 - 7710548
210 - 7702033

PREFACE

This volume contains the Proceedings of the 14th Hellenic Symposium on Nuclear Physics, organized by the National Technical University of Athens on 21 and 22 May 2004. This conference followed a series of Hellenic Nuclear Physics Conferences that started in 1990 at Thessaloniki and since then, they are held every year at different Greek academic institutions involving Nuclear Physics. The aim of this series of Symposia is to offer the local nuclear physics community the opportunity to present and discuss their latest activities in theoretical and experimental nuclear physics and applications, sometimes in collaboration with colleagues from abroad and with the use of local facilities along with facilities around the world.

This volume includes the texts of the talks and posters presented in the Symposium, as submitted by the authors. The contributions are arranged according to the order in which they were presented (please see the program of the Symposium).

The Symposium was organized under the auspices of the National Technical University of Athens (NTUA). Grateful thanks are due to all the authorities of NTUA and particularly to the Physics Department for the financial support, the technical assistance and the facilities provided for the successful organization of the Symposium. The financial support offered by the Ministry of Education, as well as the Hellenic Nuclear Physics Society, is also gratefully acknowledged. The help during the Symposium by the graduate students and the Secretaries of Physics Department Marika Piperingou and Evelina Pappa are warmly appreciated. Special thanks are due to Artemis Spyrou for the editorial assistance in the final preparation of the manuscripts and the excellent appearance of the present volume.

Athens 2005

Rosa Vlastou

Michael Kokkoris

Constantinos Papadopoulos

CONTENTS

Relativistic Hartree-Bogoliubov Description of Deformed Light Nuclei	
<i>G. A. Lalazissis et al.</i>	1
Variational Procedure Leading from Davidson Potentials to the E(5) and X(5) Critical Point Symmetries	
<i>D. Bonatsos et al.</i>	10
Pd: The Best E(5) Dynamical Symmetry Paradigm	
<i>S. Harissopulos et al.</i>	17
Global Predictions for Astrophysics Applications	
<i>P. Demetriou</i>	18
Is "Friction" Responsible for the Reduction of Fusion Rates Far Below the Coulomb Barrier?	
<i>S. Karataglidis et al.</i>	24
FAIR: The Future European Facility for Antiproton and Ion Research at GSI Darmstadt	
<i>G. Münzenberg</i>	35
Applied Nuclear Physics-Advanced Ion Beam Materials Analysis at small Accelerators	
<i>R. Grötzschel et al.</i>	43
Ion Beam Analysis for the Investigation of Diffusion Processes	
<i>H.-W. Becker</i>	51
Characterization and Investigation of Protective Coatings on Steel Samples Prepared by Plasma Detonation Techniques	
<i>P. Misaelides et al.</i>	58
Study of ${}^6\text{Li}$ Exclusive Breakup on ${}^{28}\text{Si}$ Target at 13 MeV	
<i>N. Patronis et al.</i>	59
Simulations of Fragment Correlations in the Disintegration of Non-Compact Nuclear Configurations	
<i>N. G. Nicolis</i>	64

Z(5): Critical Point Symmetry for the Prolate to Oblate Shape Phase Transition	
<i>D. Bonatsos et al.</i>	73
Screened Alfa Decay in Dense Astrophysical Plasmas and Super-strong Magnetic Fields	
<i>T. E. Liolios</i>	81
Rainfall Induced ^{137}Cs Radioactivity in the Aegean Sea	
<i>C. Tsabaris et al.</i>	100
Evaluation of a Mean Attachment Coefficient for ^{211}Pb on Poly-disperse Aerosol	
<i>K. Eleutheriadis and P. Kritidis</i>	109
Determination of Radionuclides in “Mytilus Galloprovincialis” by Alpha and Gamma Spectroscopy	
<i>H. Florou et al.</i>	111
Design and Development of a Position-Sensitive γ-Camera for SPECT	
<i>P. Paschalis et al.</i>	112
Decay Properties of High Spin States in ^{52}Mn and ^{52}Fe	
<i>M. Axiotis et al.</i>	113
Radon Measurements in Bottled Waters in Greece	
<i>K. C. Stamoulis et al.</i>	114
Radon Gas Profiles and Exposure Estimates in the Perama Cave, Greece	
<i>C. A. Papachristodoulou et al.</i>	120
A Portable Semi – Micro XRF Spectrometer for Archaeometrical Studies	
<i>Ch. Zarkadas and A. G. Karydas</i>	126
Temporal Changes of ^7Be and ^{210}Pb Concentrations in Surface Air at Temperate Latitudes (40°N)	
<i>A. Ioannidou et al.</i>	127
Study of Magnetic Rotation in ^{193}Pb: An Example of Collaboration Between Southeastern European Research Teams	
<i>D. Balabanski</i>	128

The Neutron Facility at NCSR “Demokritos” – Implementation in the Case of the $^{232}\text{Th}(n,2n)$ and $^{241}\text{Am}(n,2n)$ reactions	
<i>R. Vlastou et al.</i>	136
Measurements of the $^{241}\text{Am}(n,2n)$ Cross Section by the Activation Method	
<i>G. Perdikakis et al.</i>	144
Proton-Capture Cross Sections on the Sr Isotopes Relevant to the p-process Nucleosynthesis	
<i>S. Galanopoulos et al.</i>	153
(p,γ) Reaction Cross Sections Relevant to the p Process: First Results for the Se Isotopes	
<i>A. Lagoyannis et al.</i>	161
Searching for a Global α-Nucleus Potential for Astrophysical Applications	
<i>A. Spyrou et al.</i>	167
Dependence of Information Entropy of Uniform Fermi Systems on Correlations and Thermal Effects	
<i>Ch. C. Moustakidis and S. E. Massen</i>	173
Searches for the Σ-Nucleus Potential	
<i>Th. Petridou</i>	191
The Nuclear Equation of State in Heavy Ion Collisions	
<i>T. Gaitanos et al.</i>	203
W(5): Wobbling Mode in the Framework of the X(5) Model	
<i>D. Bonatsos et al.</i>	214
Energy Calibration of He-3, He-4 Neutron Proportional Counters	
<i>M. Manolopoulou et al.</i>	222
On the Behavior of Spallation Neutrons from Extended Pb Targets plus Moderator: A Comparison between SSNTDs Measurements and Theoretical Calculations	
<i>M. Fragopoulou et al.</i>	228
A Simplified Analytic Treatment of Shell-Effects in Metal Clusters	
<i>B.A. Kotsos and M. E. Grypeos</i>	229

Dating of Obsidian Tools by Water Diffusion (SIMS-SS) with a Novel Software	
<i>I. Liritzis, Th. Ganetsos and N. Laskaris</i>	234
Determination of ^{137}Cs in Sea Water Samples Using Gamma Spectrometry	
<i>N. Evaggeliou et al.</i>	247
Distribution and Behavior of Natural Radionuclides in Rocks and Soils of an Insular Area: The Case of the Radioactive Springs in the Island of Ikaria, Aegean Sea	
<i>G. Trabidou et al.</i>	258
Study of the Radiological Protection Monitoring in the Working Area of an Office Building Under Construction in Athens	
<i>E. N. Gazis et al.</i>	260
NAFION[®] Membrane Treatment for Low Level Lead Determination by TXRF	
<i>P. E. Koulouridakis and N. G. Kallithrakas-Kontos</i>	261
Radioactive Contamination as a Result of an ^{241}Am Lightning Rod Failure	
<i>K. L. Karfopoulos et al.</i>	262
The use of Antiprotons for Imaging and Radiotherapy: A Progress Report	
<i>N. Giokaris</i>	273
Topics from the Theoretical Study of Nuclei far from Stability	
<i>E. Mavrommatis</i>	274
Radiation Tail in (e,e',p) Reactions and Corrections to Experimental Data	
<i>C. E. Vellidis</i>	275
The Role of the λ-Effective Mass in a Phenomenological Analysis of the λ-Energy in Hypernuclei	
<i>C. A. Efthimiou et al.</i>	277
Realistic Calculations for Cold Dark Matter Detection Rates	
<i>T. S. Kosmas et al.</i>	283

Charge Distributions in Nucleons able to Create the Nuclear Structure	
<i>L. A. Kaliambos</i>	295
One and Two Proton Separation Energies from Nuclear Mass Systematics using Neural Networks	
<i>S. Athanassopoulos et al.</i>	305
On the Possible Stability of Tetraneutron and Hexaneutron	
<i>G. Anagnostatos</i>	313
Symposium Programme	324