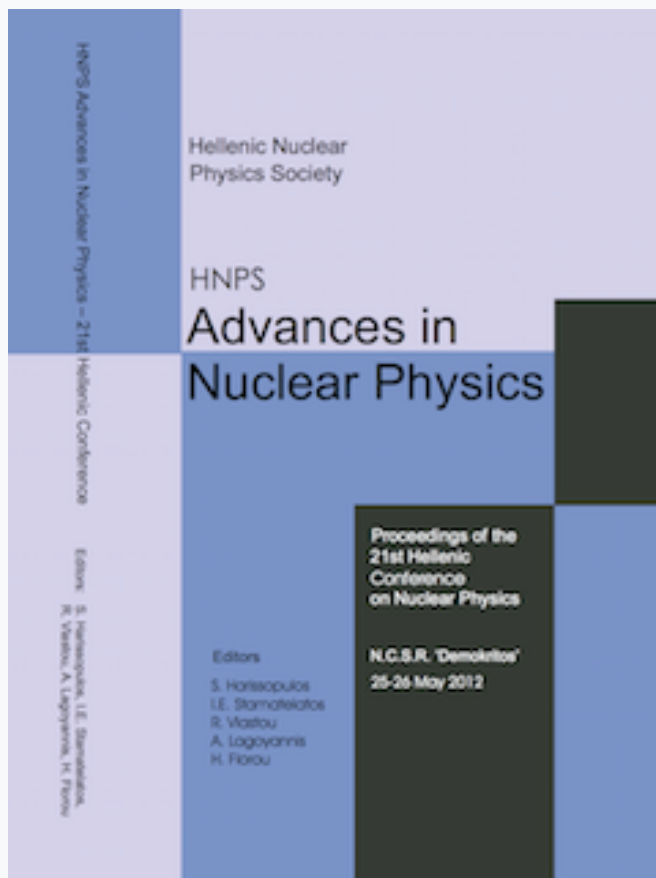


HNPS Advances in Nuclear Physics

Vol 20 (2012)

HNPS2012



Editorial Comments and Symposium Info

/ *Editorial Comments*

doi: [10.12681/hnps.2033](https://doi.org/10.12681/hnps.2033)

To cite this article:

Editorial Comments, /. (2012). Editorial Comments and Symposium Info. *HNPS Advances in Nuclear Physics*, 20, i-vii.
<https://doi.org/10.12681/hnps.2033>

HELLENIC NUCLEAR PHYSICS SOCIETY

PROCEEDINGS

21st HELLENIC CONFERENCE

ON

NUCLEAR PHYSICS



**NATIONAL CENTRE FOR SCIENTIFIC RESEARCH
“DEMOKRITOS”**

25 & 26 MAY 2012

SPONSORS

- INSTITUTE OF NUCLEAR & RADIOLOGICAL SCIENCES, TECHNOLOGY, ENERGY & SAFETY, NCSR “DEMOKRITOS”
- ENVIRONMENTAL RADIOACTIVITY LABORATORY, UTE OF NUCLEAR & RADIOLOGICAL SCIENCES, TECHNOLOGY, ENERGY & SAFETY, NCSR “DEMOKRITOS”
- TANDEM ACCELERATOR LABORATORY, INSTITUTE OF NUCLEAR & PARTICLE PHYSICS, NCSR “DEMOKRITOS”

HELLENIC NUCLEAR PHYSICS SOCIETY

GOVERNING BOARD

- R. VLASTOU (CHAIR)
- S. HARISSOPULOS (DEPUTY CHAIR)
- T. MERTZIMEKIS (SECRETARY)
- T. KOSMAS (TREASURER)
- M. ZAMANI (MEMBER)

ORGANIZING COMMITTEE – EDITORS

- S. HARISSOPULOS, NCSR “DEMOKRITOS”
- I.E. STAMATELATOS, NCSR “DEMOKRITOS”
- R. VLASTOU, NTUA
- A. LAGOYANNIS, NCSR “DEMOKRITOS”
- H. FLOROU, NCSR “DEMOKRITOS”

PREFACE

The present volume contains the Proceedings of the 21st Hellenic Conference on Nuclear Physics, held in the National Centre for Scientific Research “Demokritos”, on 25th and 26th May 2012. The texts of the talks and posters are compiled as submitted by the authors.

This conference followed a series of Hellenic Nuclear Physics Conferences that started in 1990 at Thessaloniki and since then, they are yearly held at different Greek academic institutions. The aim of this series of conferences 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 usage of facilities in Greece and abroad. It is also a unique forum for presentations by young colleagues, in the early stages of their careers.

The conference was organized under the auspices of the National Centre for Scientific Research “Demokritos”. The financial support offered by the Institute of Nuclear and Radiological Sciences, Technology, Energy and Safety, the Environmental Radioactivity Laboratory, and the TANDEM Accelerator Laboratory of the Institute of Nuclear and Particle Physics, NCSR “Demokritos” is gratefully acknowledged. Moreover, the encouragement and assistance provided by the Hellenic Nuclear Physics Society Governing Board, is also gratefully acknowledged. The help during the conference by several graduate and undergraduate students (names) is also warmly appreciated.

Athens 2013

Sotiris Harissopulos
Ion Stamatelatos
Rosa Vlastou
Tassos Lagoyannis

TABLE OF CONTENTS

E. Kossionides	1
40 years of "beam on target" at the Tandem accelerator (<i>invited talk</i>)	
R. Vlastou	2
New measurements of the $^{241}\text{Am}(n,2n)^{240}\text{Am}$ cross section	
M. Zamani	6
Fission induced by light particles at intermediate energies	
T. Alexopoulos	7
ATLAS New Small Wheel Upgrade: Micromegas	
G. Souliotis	8
Studies of the process of N/Z equilibration in peripheral and semiperipheral heavy-ion collisions at 15 MeV/nucleon	
T. Konstantinopoulos	9
In search of nuclei exhibiting E(5) critical-point symmetry features	
P. Kritidis	10
Radioactivity measurements one year after the nuclear accident in Fukushima, Japan (<i>invited talk</i>)	
A. Ioannidou	11
Radionuclides from the Fukushima accident in Thessaloniki, Greece and Milano, Italy - measurements and modelling approaches	
M. Sotiropoulou	12
The Application of the ERICA Tool to Radioactivity Measurements for Environmental Impact Assessment: The Case Study of Fukushima ...	
A. Clouvas	13
Radon in Soil : Experimental measurements and Theoretical calculations	
C. Tsabaris	14
Experimental Set Up for the Determination of Natural Radionuclides in Formation Waters Produced in Oil and Gas Exploration Fields	
G. Eleftheriou	15
Radiological Modelling at Thermaikos Gulf	
E. Mavrommatis	24
β --Decay Half-Lives of Nuclei in the Crust of Neutron Stars: The ANN Model	
T.S. Kosmas	26
Astrophysical neutrino signals and the role of nuclear structure	

Ch. C. Moustakidis	27
Nuclear Equation of State Effects on the r-mode Instability of Neutron Stars	
D. Petrellis	35
Nuclear physics aspects of the p-process	
I. Savvidis	36
Neutron Detection via $^{14}\text{N}(n,p)^{14}\text{C}$ reaction Using the Spherical Proportional Counter	
M. Kokkoris	37
Experimental study and FLUKA simulations of a prototype micromegas chamber in a mixed neutron and photon radiation field ...	
T. J. Mertzimekis	44
The Application of the High-Velocity Transient Field for the $g(21+)$ Measurement in the Neutron-rich ^{72}Zn	
N. Patronis	49
One neutron transfer reactions around ^{68}Ni : First results from the $^{66}\text{Ni}(d,p)^{67}\text{Ni}$ experiment	
K. Mergia	54
Research activities of NCSR “Demokritos” for the European Fusion Technology Program	
Z. Kotsina	55
Radiation damage studies of Fe-Cr alloys for Fusion applications using ion beams	
A. Godelitsas	61
Activities of the University of Athens at SUL-X and FLUO beamlines of ANKA Synchrotron facility in Earth & Environmental Sciences	
J. Kalef-Ezra	62
Applications of a Novel Whole Body Counter in Radiation Protection and Human Body Composition Studies	
A.-N. Rapsomanikis	66
Phantom Experimentation on SPECT and Infrared Tomography	
M. Zioga	73
Image Reconstruction in the Positron Emission Tomography	
N. G. Nicolis	80
Population of isomeric states in neutron-induced reactions on ^{197}Au	
M. Diakaki	81
Characterization of actinide targets for fission cross section measurements	

V. Paneta	89
Differential cross-section measurements for the ${}^7\text{Li}(p,p0){}^7\text{Li}$, ${}^7\text{Li}(p,\alpha0){}^4\text{He}$, ${}^{19}\text{F}(p,p0){}^{19}\text{F}$ and ${}^{19}\text{F}(p,\alpha0){}^{16}\text{O}$ reactions	
V. Tsakstara	96
Studying nuclear responses to Supernova neutrinos	
D.K. Papoulias	104
Lepton -flavor violating neutral-current exotic ν -nucleus processes	
P.G. Giannaka	112
Realistic nuclear structure calculations for orbital e-capture by nuclei	
K. Eleftheriadis	120
Radioactive tracers for long range transport of biomass burning aerosols	
T. Vasilopoulou	121
Large Sample Neutron Activation Analysis for Cultural Heritage Studies	
A. Savidou	129
Techniques Used for Clearance of Radioactive Waste	
D. L. Patiris	133
Sediment measurement of samples from Tigris and Euphrates estuary by means of gamma-ray spectroscopy	
A.Kalamara	134
Monte Carlo MCNP modeling of a HPGe detector and its efficiency for extended sample geometry	
E. Androulakaki	139
In situ Gamma-Ray Measurements of Marine Sediment using Monte Carlo Simulation	
A. Godelitsas	145
Heavy metals and radionuclides in the northern coastal zone of Ikaria island (Greece)	
I. Tzifas	146
High uranium concentrations in sedimentary rocks of Epirus (NW Greece)	
J. Kalef-Ezra	147
Induced Radioactivity in Medical Accelerators	
E. Vagena	152
Measurements and Monte Carlo simulations of neutron production at a medical accelerator	

S. Valakis	153
Effect of Radon Concentration in Air on the Quality of Radioactivity Measurements in the Human Body	
H. Florou	157
Indicative Radiation Dose Rates in Selected Areas of Elevated Natural radioactivity in Greece	
F. Panagiotopoulos	158
3D Modeling of the New Microbeam Setup at INP, NCSR “Demokritos”	
K. Stamou	159
A Nuclear Electromagnetic Moments Database	
A. Kanellakopoulos	160
Characterization of Nuclear Targets and Thin Films Using Ion-Beam Techniques	
N. Gazis	164
Fabrication and validation of the prototype supporting system for the CLIC Two-Beam Modules	
F. Noli	165
N- and O-depth distribution by NRA for the investigation of the corrosion resistance of plasma nitrided and oxidized CoCrMo alloy	
V. Foteinou	166
Proton capture reactions for the p-process nucleosynthesis: the case of the Mo isotopes	
G. Provas	167
Systematic measurements of (alpha,gamma) reaction cross sections for astrophysics applications	
 SCIENTIFIC PROGRAM	 169
 LIST OF PARTICIPANTS	 173