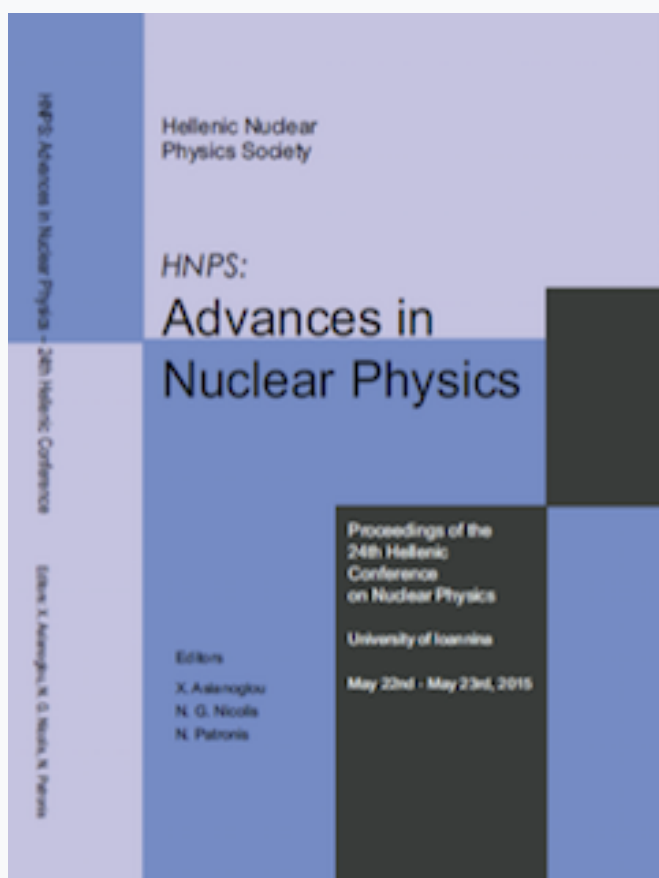


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24th Annual Symposium  
HELLENIC NUCLEAR PHYSICS SOCIETY

# HNPS 2015

22-23 May, 2015

Department of Physics  
University of Ioannina

Nuclear Physics & Astrophysics  
Nuclear Physics Applications  
Nuclear Technology

“Karolos Papoulias” Conference Center

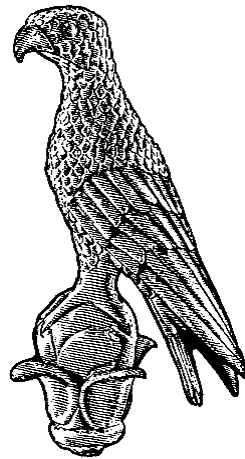
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**University of Ioannina**



24<sup>th</sup> SYMPOSIUM OF THE HELLENIC  
NUCLEAR PHYSICS SOCIETY  
*Ioannina, 22-23 May 2015*



**From the editors:**

The 24<sup>th</sup> Annual Symposium of the Hellenic Nuclear Physics Society was held at the University of Ioannina, from 22 to 23 May, 2015. It was hosted at the “karolos Papoulias” Conference Center and was organized by the Nuclear Physics Laboratory of the Physics Department of the University of Ioannina.

A wide area of topics were covered, which can be categorised in Nuclear Physics and Astrophysics, Nuclear Physics Applications, Environmental Physics, Nuclear Technology and Theoretical Nuclear Physics. The 118 registered participants had the opportunity to present their work, discuss their achievements and problems and develop new collaborations.

This volume contains the Proceedings of the conference, numbering full papers and abstracts for 32 oral presentations and 17 poster contributions presented at the conference.

Ioannina, May 2017

Xenofon Aslanoglou  
Nicolaos Patronis  
Nicolaos Nicolis

## List of Participants

<b>A/A</b>	<b>Title</b>	<b>Family Name</b>	<b>First Name</b>	<b>Affiliation</b>
1	Ms	Alexandropoulou	Stamatina	U of I
2	Mr	Anagnostopoulos	Fotios	U of I
3	Mr	Anastasiadis	Anastasios	U of I
4	Ms	Androulakaki	Frosso	NTUA
5	Mr	Androulakis	Ioannis	AUTH
6	Prof	Aslanoglou	Xenofon	U of I
7	Dr	Axiotis	Michail	NCSR"D"
8	Ms	Betsou	Chrysoula	U of I
9	Ms	Bezou	Paraskevi	U of I
10	Ms	Bligoura	Natalia	U of I
11	Mr	Chanlaridis	Savvas	AUTH
12	Prof.	Clouvas	Alexandros	AUTH
13	Dr	Dimitriou	Anastasios	U of C
14	Mr	Doukas	Spiros	U of I
15	Mr	Efremidis	Nikolaos	U of I
16	Ms	Eleme	Zinovia	U of I
17	Dr	Florou	Heleny(Eleni)	NCSR"D"
18	Dr	Foteinou	Varvara	NCSR"D"
19	Prof.	Gaitanos	Theodoros	AUTH
20	Ms	Galanakou	Panagiota	U of I
21	Ms	Georgali	Efstathia	U of I
22	Ms	Georgiadou	Anastasia	U of I
23	Ms	Georvasili	Stefania	U of I
24	Dr	Giannaka	Panagiota	U of I
25	Mr	Gianneios	Paris	U of I
26	Mr	Giannopoulos	Stathis	U of I
27	Mr	Girbas	Mike	U of I
28	Ms	Gkilo	Zoel	AUTH
29	Ms	Gkiouzel	Sevasti-Maria	U of I
30	Ms	Gogou	Eurosini	U of I
31	Mr	Grigoriadis	Anastasios	U of I
32	Ms	Grigoriadoy	Panagiota	U of I
33	Prof.	Ioannidis	Konstantinos	U of I
34	Prof.	Kafef-Ezra	John	U of I
35	Mr	Kalaitzis	Panagiotis	U of I
36	Ms	Kalamara	Antigoni	NTUA
37	Mr	Kanellakopoulos	Anastasios	U of A
38	Mr	Kantre	Karim-Alexandros	NTUA
39	Ms	Kanzizoglou	Symela	U of I
40	Dr	Käppeler	Franz	KIT
41	Ms	Karagkounh	Kwnstantina	U of I
42	Mr	Karailias	Alexis	U of A
43	Ms	Kardomateas	Kalliopi	U of I
44	Ms	Kastarou	Eleni	U of I
45	Ms	Katramada	Electra	U of I
46	Ms	Katsibra	Theodora	U of I
47	Mr	Kazantzidis	Lavrentios	U of I
48	Dr	Kokkoris	Michael	NTUA
49	Ms	Konstantinidou	Michaela	U of I
50	Ms	Konstantinou	Eleftheria	U of I
51	Mr	Koseoglou	Pavlos	IKP TU
52	Ms	Kosma	Thomai	U of I
53	Prof.	Kosmas	Theocharis	U of I

54	Ms	Koutsilianou	Vasiliki	U of A
55	Mr	kyriopoulos	Fotis	U of I
56	Ms	Lagaki	Varvara	U of A
57	Dr	Lagopati	Nefeli	U of I
58	Ms	Levidioti	Argyro	NTUA
59	Ms	Mahaira	Lito	U of I
60	Ms	Manoli	Paraskevi	U of I
61	Ms	Marangouli	Georgia	NTUA
62	Mr	Melios	Vasilios	U of I
63	Prof.	Mertzimekis	Theo J.	U of A
64	Ms	Michalopoulou	Veatriki	NTUA
65	Ms	Mitsi	Eleni	U of A
66	Dr	Moustakidis	Charalampos	AUTH
67	Mr	Nakis	Giorgos	U of I
68	Prof.	Nicolis	Nikolaos	U of I
69	Mr	Ntagiantas	Sevastianos	U of I
70	Ms	Ntinopoulou	Stamatia	U of I
71	Ms	Palaiologou	Athanasia	U of I
72	Mr	Panagiotoulas	Lazaros	U of I
73	Dr	Paneta	Valentina	NTUA
74	Dr	Papachristodoulou	Christina	U of I
75	Mr	Papoulias	Dimitrios K.	U of I
76	Ms	Pappa	Filothei	NTUA
77	Mr	Paspaliaris	Evangelos-Dimitrios	U of I
78	Mr	Passalidis	Stylianos	U of I
79	Dr	Patiris	Dionisis	HCMR
80	Prof.	Patronis	Nikolas	U of I
81	Mr	Pelessis	Constantinos	U of I
82	Mr	Perketes-Sigalas	Konstantinos	NTUA
83	Prof.	Petropoulos	Nick	NTUA
84	Dr	Prassa	Vaia	U of Z
85	Dr	Provas	Georgios	NCSR"D"
86	Mr	Psaltis	Thanassis	U of A
87	Mr	Sakkas	Alexandros	U of I
88	Dr	Sarlikiotis	Nikolaos	NCSR"D"
89	Ms	Savvidi	Kamila	U of I
90	Prof.	Savvidis	Ilias	AUTH
91	Mr	Savvidis	George	U of I
92	Mr	Sgouros	Onoufrios	U of I
93	Ms	Sinani	Alexandra	U of I,
94	Dr	Sinatkas	Ioannis	TEI "K"
95	Mr	Skouras	Marios	U of I
96	Mr	Soukeras	Vasileios	U of I
97	Dr	Stamatelatos	Ion	NCSR"D"
98	Dr	Stamoulis	Kostas	U of I
99	Mr	Stavropoulos	Georgios	U of I
100	Mr	Stavropoulos	Leonardos	U of A
101	Ms	Stefanidou	Xrysa	U of I
102	Prof.	Strologas	John	U of I
103	Mr	Symeonidis	Christos	U of I
104	Mr	Trachiotis	Panagiotis	U of I
105	Mr	Tringas	Georgios	U of I
106	Dr	Tsabaris	Christos	HCMR
107	Dr	Tsinganis	Andreas	NTUA
108	Dr	Tsodoulos	Ioannis	U of I
109	Mr	Tsologiannis	Antonis	U of I

110	Mr	Venikoudis	Stavros	U of I
111	Prof.	Vlastou-Zani	Roza	NTUA
112	Ms	Vogiatzi	Stergiani-Marina	U of I
113	Mr	Vretinaris	Stamatis	AUTH
114	Ms	Xrysoxoou	Xristina-Stella	U of I
115	Ms	Zaverdenou	Mariana	U of I
116	Ms	Zelilidou	Styliani	U of I
117	Ms	Zervou	Aristea-Anastasia	U of I
118	Ms	Zyrioliou	Aikaterini	U of I

**24<sup>th</sup>Annual Symposium of the Hellenic Nuclear Physics  
Society (HNPS 2015)**

**Friday 22.05.2015**

08.30 – 09.00 Registration  
09.00 - 09.15 Welcome Speeches

TIME	SPEAKER	AFFILIATION	TITLE
<b>Session I – Chair: R. Vlastou</b>			
09.15 - 10.00	F. Käppeler	KIT	Neutron capture data for unstable nuclei– Astrophysical quests and experimental challenges
10.00 - 10.15	M. Axiotis	NCSR	New Instruments for Nuclear Astrophysics and Applications
10.15 - 10.30	V. Foteinou	NCSR	Study of capture reactions in inverse kinematics relevant to nuclear astrophysics
10.30 - 10.45	A. Tsinganis	NTUA, CERN	The fission programme at the CERN n_TOF facility
10.45 - 11.00	A. Stamatopoulos	NTUA	The <sup>240</sup> Pu(n,f) Cross Section Measurement at CERN's n_TOF facility
11.00 - 11.15	Z. Eleme	UOI	Determination of the Neutron Beam Spatial Profile at n_TOF EAR-2 using the CR-39 Track Detectors
11.15 - 11.45	COFFEE BREAK		
<b>Session II – Chair: M. Kokkoris</b>			
11.45 - 12.00	R. Vlastou	NTUA	Neutron Beam Characterization at the Athens Tandem Accelerator NCSR "Demokritos"
12.00 - 12.15	P. Grigoriadou	UOI	CONY - COmputer code for Neutron Yield calculations: The <sup>7</sup> Li(p,n) <sup>7</sup> Be and <sup>3</sup> H(d,n) <sup>4</sup> He reactions.
12.15 - 12.30	A. Kalamara	NTUA	Activation cross section of the (n,2n) reaction on Hf isotopes
12.30 - 12.45	T.J. Mertzimekis	UOA	The UoA online database for nuclear electromagnetic moments data: Status and perspectives
12.45 – 13.00	I. Savvidis	AUTH	A Prospect to Nuclear Reactor Neutrino Detection via the Coherent Scattering with the Spherical Proportional Counter
<b>13.00 - 15.00 LUNCH BREAK / POSTER SESSION</b>			
<b>Session III – Chair: I. Savvidis</b>			
15.00 - 15.15	M. Kokkoris	NTUA	On the Validation of Charged-Particle Differential Cross-Section Data at Low Energies
15.15 - 15.30	I.E. Stamatelatos	NCSR	Preanalysis of Neutron Activation Measurements in Shielding Penetrations at JET
15.30 - 15.45	P. Koseoglou	IKP-TUD	Neutron spectrum determination of a sub-critical nuclear reactor by multi-disc neutron activation technique
15.45 - 16.00	A. Dimitriou	UOC, NCSR	Atomic Physics at the 5MV Tandem at Demokritos: the UoC APAPES project
16.00 - 16.15	V. Paneta	NTUA, NCSR	Theoretical investigation of the <sup>19</sup> F(p,p0) differential cross section up to Ep=2.3 MeV
16.15 - 16.30	T.S. Kosmas	UOI	Modelling astrophysical and laboratory neutrinos: Simulated signals for space and Earth detectors
16.30 - 16.45	V. Prassa	UOZ	High-K isomers in transactinide nuclei close to N=162
16.45 – 17.15	COFFEE BREAK		
<b>Session III – Chair: H. Florou</b>			
17.15 – 17.30	A. Clouvas	AUTH	Radon migration in soil and its relation to terrestrial gamma radiation
17.30 – 17.45	C. Tsabaris	HCMR	Preliminary analysis of in-situ radioactivity measurements in the south Caspian Sea
17.45 – 18.00	F.K. Pappa	HCMR, NTUA	Temporal variation of <sup>137</sup> Cs profiles in Lemnos deep basin, North Aegean Sea, Greece
18.00 - 18.15	E.G. Androulakaki	HCMR, NTUA	Monte Carlo based full spectrum analysis of NaI(Tl) spectra acquired in the marine environment
<b>18.30 – 20.00 HNPS GENERAL ASSEMBLY</b>			
21.00 :	CONFERENCE DINNER		

## SATURDAY 23.05.2015

Time	Speaker	Affiliation	Title
Session V – Chair: I. E. Stamatelatos			
10.00 – 10.15	J. Kafef-Ezra	UOI	The rebirth of radiation therapy with kV X-rays
10.15 – 10.30	H. Florou	NCSR	Integrating the radiological impact assessment in all life organization levels by an innovative tool based on nuclear applications and cytogenetic observations
10.30 – 10.45	E. Katsarou	UOI	Dose Distribution near Inhomogeneities
10.45 – 11.00	J. Strologas	UOI	C-SPECT, a novel cardiac single-photon emission computed tomography system
11.00 – 11.30	COFFEE BREAK		

Session IV – Chair: T.S. Kosmas			
11.30 – 11.45	Ch.C. Moustakidis	AUTH	R-mode constraints from neutron star equation of state
11.45 – 12.00	T. Gaitanos	AUTH, UOG	Equation of State with Momentum Dependent Constraints
12.00 – 12.15	D.K. Papoulias	UOI	Probing electromagnetic neutrino properties within the non-standard neutrino nucleus interactions
12.15 – 12.30	L.C. Kazantzidis	UOI	Simulation of neutrino emission in hadronic microquasar jets
12.30 – 12.45	E.-D. S. Paspaliaris	UOI	The role of magnetic fields in the formation and propagation of hadronic microquasar jets
12.45 – 13.00	F. K. Anagnostopoulos	UOI	Development of numerical tools for phenomenological description of neutrino emission from microquasars

### HNPS 2015 CLOSING

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P01	G. Eleftheriou	NTUA, HCMR	Model exercise of radionuclides' deposition on Gulf Thermaikos and its catchment
P02	I. E. Stamatelatos	NCSR	Bremsstrahlung Spectra Characterization by Photo-Activation: Preliminary Results
P03	S. Doukas	UOI	Determination of the effective solid angle of the $1s2s2p^4P$ metastable auger decay in fast ion-atom collisions using Simion 8.1 in a Monte-Carlo type simulation
P04	G. Marangouli	NTUA	Computational study of the neutron flux produced by the $^2H(d,n)^3He$
P05	E. Batziou	UOA	Modeling radiative proton-capture reactions in mid-heavy nuclei
P06	A. Karailias	UOA	The Athens Mobile $\gamma$ -Spectrometry System (AMESOS)
P07	I.M. Tsodoulos	UOI	Analysis of uncertainties associated with different factors used to determine the age of sediments with the Optically Stimulated Luminescence method
P08	M. Alexandropoulou	UOI	A preliminary study of mosses as biomonitors of $^{137}Cs$ activity in the air of Ioannina city
P09	E. Mitsi	UOA	RICOCHET: A quick-and-dirty approach to analyze $\mu$ -XRF synchrotron data using open-source utilities
P10	V. Michalopoulou – Petropoulou	HCMR, NTUA	Measurement of radionuclides and heavy metals concentration in surface sediments from the coastal zone of Lavreotiki peninsula
P11	N. Lagopati	UOI, UOA	Quantification of 3D SPECT stress / rest volume differences in Myocardium Perfusion Imaging
P12	G. Provatas	NCSR	Calibration of Radiation Monitors
P13	N. Lagopati	UOI, UOA	Volume Quantification of $^{123}I$ -DaTSCAN Imaging for the Differentiation and Grading of Essential Tremor and Parkinsonism
P14	N. Sarlikiotis	GAEC, NCSR	MCNP model and validation of the EEAE ACCUSCAN Whole Body Counter
P15	A. Dimitriou	UOC, NCSR	Production of He-like ionic beams in both pure ground ( $1s^2$ ) and mixed state ( $1s^2, 1s2s$ ) with the use of Gas and Foil post-strippers for zero-degree Auger Projectile Electron Spectroscopy
P16	I. Kotopoulou	UOA	Natural Radioactivity in Marine Sediment Cores from the Shallow-sea Hydrothermal System of Milos Island, Greece
P17	V. Tsakstara	UOI	The Cobra experiment as detector of Coherent $\nu$ -nucleus scattering

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