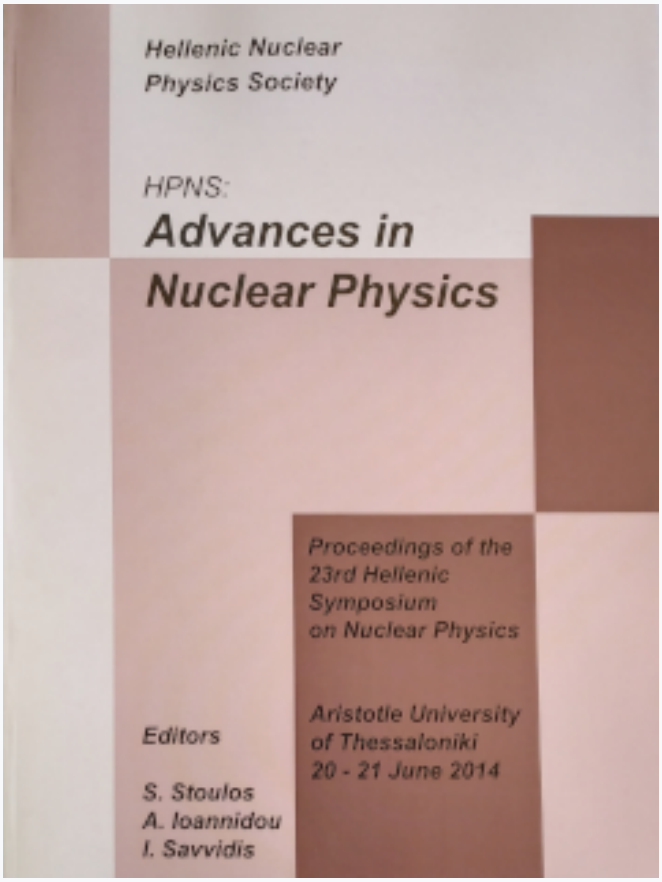
ePublishing

ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΤΕΚΜΗΡΙΩΣΗΣ
EKT NATIONAL DOCUMENTATION CENTRE

HNPS Advances in Nuclear Physics

Vol 22 (2014)

HNPS2014



Editorial Comments and Symposium Info

Editorial Comments and Symposium Info Editorial Team

To cite this article:

Editorial Team, E. C. and S. I. (2019). Editorial Comments and Symposium Info. *HNPS Advances in Nuclear Physics*, *22*. Retrieved from https://eproceedings.epublishing.ekt.gr/index.php/hnps/article/view/1921

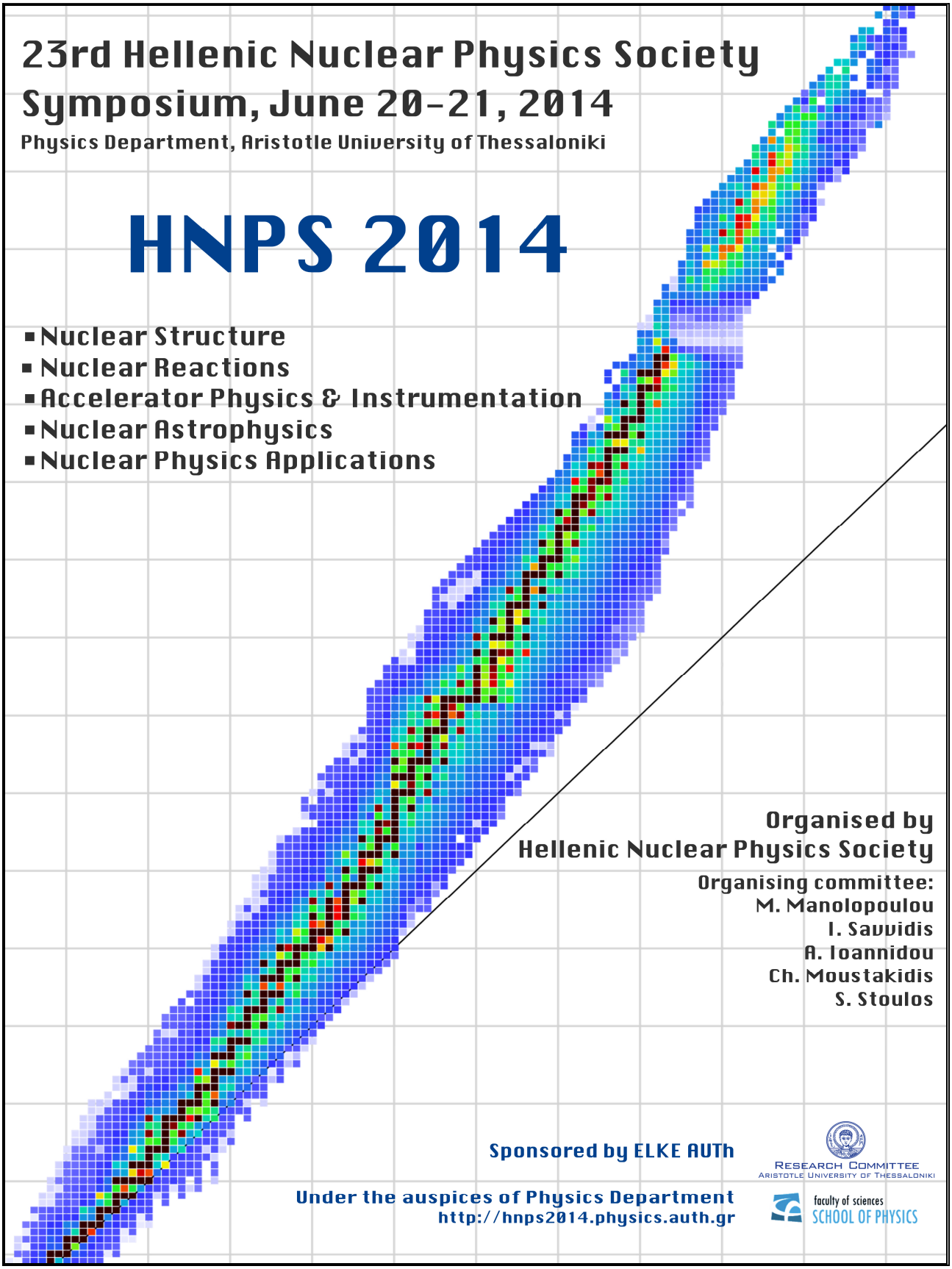
https://epublishing.ekt.gr | **e-Publisher:** EKT | **Downloaded at:** 29/03/2024 10:20:22

23rd Hellenic Nuclear Physics Society Symposium, June 20–21, 2014

Physics Department, Aristotle University of Thessaloniki

HNPS 2014

- Nuclear Structure
- Nuclear Reactions
- Accelerator Physics & Instrumentation
- Nuclear Astrophysics
- Nuclear Physics Applications



Organised by
Hellenic Nuclear Physics Society

Organising committee:
M. Manolopoulou
I. Savvidis
A. Ioannidou
Ch. Moustakidis
S. Stoulos

Sponsored by ELKE AUTh

RESEARCH COMMITTEE
ARISTOTLE UNIVERSITY OF THESSALONIKI

Under the auspices of Physics Department
http://hnps2014.physics.auth.gr

faculty of sciences
SCHOOL OF PHYSICS

TABLE OF CONTENS

PREFACE ……3
MEMORIAL OF METAXIA MANOLOPOULOU.....…..4
SYMPSIUM PROGRAMME ……....5
LIST OF PARTICIPANTS ……8

PRESENTATIONS
Opportunities for nuclear reaction studies at future facilities……..10
Martin Veselsky, Jozef Klimo, Nikoleta Vujisicova and Georgios A. Souliotis (invited talk)

Measurement of the ^{237}Np(n,f) cross section with the FIC detector at the CERN n_TOF facility…...20
M. Diakaki, D. Karadimos, R. Vlastou, M. Kokkoris, n_TOF collaboration

Measurement of the ^{242}Pu(n,f) cross-section at the CERN n_TOF facility……..…….28
A. Tsinganis, E. Berthoumieux, C. Guerrero, N. Colonna, M. Calviani, R. Vlastou, & n TOF Collaboration

Analysis of neutron streaming through penetrations in the JET biological shielding…….……..34
I.E. Stamatelatos, T. Vasilopoulou, , P. Batistoni , S. Conroy, B. Obryk and EFDA JET contributors

Study of the ^{10}B(p,αγ)^{7}Be and ^{10}B(p,p'γ)^{10}B reactions for PIGE purposes……..…….40
A. Lagoyannis, K. Preketes - Sigalas, M. Axiotis, V. Foteinou, S. Harissopulos, M. Kokkoris, et al.

Neutron reaction studies in the rare earth region: First results for the ^{162}Er(n,2n)^{161}Er physics case....45
N. Patronis, X. Aslanoglou, M. Axiotis, Z. Eleme1, V. Foteinou, S. Harissopulos A. Kalamara et al.

Activation cross section for the (n,2n) reaction on ^{197}Au ……..51
A. Kalamara, M.Serris, M.Anastasiou, M. Diakaki, M. Kokkoris, N.Patronis, V.Paneta, et al.

The benchmarking procedure: Implementation in the case of proton backscattering…….…...56
V. Paneta, J. Colaux, A. Gurbich, C. Jeynes, M. Kokkoris, A. Lagoyannis

Microscopic Calculations of Low and Medium Energy Fission with the CoMD Model……..…....67
N. Vonta, G.A. Souliotis, A. Bonasera, M. Veselsky

Symmetry energy effects on isovector properties of n-rich nuclei with Thomas-Fermi approach……74
M.C. Papazoglou, Ch. C. Moustakidis

Nuclear study of the exotic neutrino interactions……...79
D.K. Papoulias and T.S. Kosmas

The role of e^--capture in neutrino-nucleosynthesis……..……..84
P.G. Giannaka and T.S. Kosmas

The response of autonomous underwater telescope to high energy ν for the observation of GRBs.....88
K. Balasi, C. Markou, K. Tzamarioudaki, P. Rapidis, E. Drakopoulou, K. Pikounis, C. Bagatelas

Systematic cross section measurements of (α,γ) reactions for astrophysics……...94
G. Provatas, V. Foteinou, M. Axiotis, A. Lagoyannis, P. Demetriou, S. Harissopulos, H.-W. Becker, et al.

Proton capture reactions in medium-heavy nuclei relevant to p-process nucleosynthesis……..…...98
V. Foteinou, G. Provatas, M. Axiotis, A. Lagoyannis, P. Demetriou, H.-W. Becker,et al.

Radiotoxic metals concentration in sediments due to gold mining activities, Chalkidiki……..…....102
F. K. Pappa, C. Tsabaris, H. Kaberi, C. Zeri, I. Pashalidis, A. Ioannidou, E. Androulakaki, et al.

Use of the OSLDating and X-Ray Fluorescence Spectrometry Methods as Tools in Paleoseismology….107
Tsodoulos I.M., Stamoulis K., Papachristodoulou C., Ioannides K.G. and Pavlides S.

Use of everyday materials in retrospective nuclear accident dosimetry……..113
Stamoulis K.C., Ioannides K.G., Bakola H., Papachristodoulou C.A., Tsodoulos I.M.

Benchmarking the proton elastic scattering cross sections on ^{19}F and ^{nat}B using ΔE/E silicon telescopes.117
A. Stamatopoulos, Axiotis, M. Kokkoris, A. Lagoyannis, V. Paneta, R. Vlastou

Incorporation of Ion Post Stripper in the APAPES Experimental Setup…….122
E. M. Asimakopoulou, I. Madesis, T. J. M. Zouros, T. J. Mertzimekis, A. Lagoyannis, M. Axiotis

A new γ-spectroscopy station at the University of Athens……..126
Varvara Lagaki, Efthimios Koubaris and Theo J. Mertzimekis

Large Sample Neutron Activation Analysis of Ceramic Matrix Composites……..……129
I.E. Stamatelatos, T. Vasilopoulou, E. Tsompopoulou, M. Blaauw, K. Mergia

PREFACE

This volume contains the Proceedings of the 23rd Symposium of the Hellenic Nuclear Physics Society, held in Aristotle University of Thessaloniki on the 20th and 21st of June 2014 (HNPS-2014). The texts of the talks and poster presentations are compiled as submitted by the authors.

This symposium followed a series that started in 1990 and since then is yearly held at different Greek Academic Institutions involving Nuclear Physics. The aim of this series of symposiums is to offer the opportunity to present and discuss the latest activities of the Greek nuclear physics community in theoretical and experimental nuclear physics including applications. It is also a unique forum for the young scientists to present their work in the early stage of their career.

The symposium was organized under the auspices of the Physic Department of AUTH, with the financial support by the Hellenic Nuclear Physics Society and the Research Committee of AUTH. Grateful thanks are due to all the above mention authorities as well as to several graduated and post-graduated students for their support to the specific event.

Thessaloniki 2016

On the behalf of the Organizing Committee

M. Manolopoulou
I. Savvides
A. Ioannidou
C. Moustakidis
S. Stoulos

MEMORIAL of Metaxia Manolopoulou



Metaxia Manolopoulou was born on 23rd of July 1960. She studied Physics in the Aristotle University of Thessaloniki and received her PhD in 1990. She was a member of Nuclear Physics Laboratory from 1983 and started her career as an academic teacher in 1996 at the Physics Department of AUTH.

Her research covered a wide range of activities with forefront contributions to Environmental Radioactivity and Radioecology; Radiation detection methods and Dosimetry as well as to Spallation sources – Accelerator Driven Systems and Transmutation experiments taken place at the JINR Dubna, Russia. She had also work in the frame of ATLAS project in CERN, Geneva, Switzerland. The 23rd Symposium of HNPS was the last scientific event that she participated since few months later she passed away due to lung cancer.

Metaxia was a very polite and associable person, capable to handle a research and reaching conclusions. All the above in corporation to her strong intention to study and research further inspire her students and her colleagues as well.

23rd ANNUAL SYMPOSIUM OF THE HELLENIC NUCLEAR PHYSICS SOCIETY
Jun 20 – 21, 2014, Aristotle University of Thessaloniki, Greece
(HNPS-2014)

Symposium programme

Friday 20 June 2014

SESSION I **Chair: T. Kosmas UOI**

09:00 – 09:10 Introductory presentation of Dr. K. Langanke
T. Kosmas UOI

09:10 – 09:40 Opportunities at the Facility for Antiproton and Ion Research in GSI Darmstadt (*invited talk*)
K. Langanke GSI

09:40 – 10:00 Nuclear physics at the Institute of Physics of SASc in Bratislava (*invited talk*)
M. Veselsky ASB

10:00 – 10:30 CALIBRA: A Research Infrastructure proposal for the National Roadmap (*invited talk*)
S. Harissopoulos NCSR

SESSION II **Chair : S. Harissopoulos NCSR**

11:00 – 11:20 Super Heavy Elements –SHE
M. Zamani – Valasiadou AUTH

11:20 – 11:35 Measurement of the ^{237}Np(n,f) cross section with the FIC detector at the CERN n_TOF facility
M. Diakaki NTUA

11:35 – 11:50 Measurement of the ^{242}Pu(n,f) cross-section at the CERN n_TOF facility
A. Tsinganis NTUA

11:50 – 12:05 Microscopic Calculations of Low and Medium Energy Fission with the CoMD Model
N. Vonta UOA

12:05 – 12:20 Analysis of neutron streaming through penetrations in the JET biological shielding
I.E. Stamatelatos NCSR

12:20 – 12:35 Study of the ^{10}B(p,αγ)^{7}Be and ^{10}B(p,p'γ)^{10}B reactions for PIGE purposes
A. Lagoyannis NCSR

12:35 – 12:50 Neutron reaction studies in the rare earth region: First results for the ^{162}Er(n,2n)^{161}Er physics case
N. Patronis UOI

12:50 – 13:05 Activation cross section for the (n,2n) reaction on ^{197}Au
A. Kalamara NTUA

13:05 – 13:20 The benchmarking procedure: Implementation in the case of proton backscattering
V. Paneta NTUA

SESSION III **Convener: E. Florou NCSR**

15:00 – 15:30 POSTER SESSION

Benchmarking the proton elastic cross sections on ^{19}F and ^{nat}B using ΔE/E silicon telescopes
A. Stamatopoulos UOA

Study of the ^{11}B(p,p'γ)^{11}B reaction for PIGE applications
K. Preketes-Sigalas NCSR

Rate Theory Analysis of Point Defect Migration in Irradiated Fe-Cr alloys
Z. Kotsina NCSR

Incorporation of Ion Post Stripper in the APAPES Experimental Setup
E.M. Asimakopoulou UOA

Spectrum analysis using MCsimulations for *in situ* γ-ray measurements in the marine environment
E.G. Androulakaki NTUA
HDA input lens voltages optimization using SIMION
A. Kanellakopoulos UOA
A new γ-spectroscopy station at the University of Athens
V. Lagaki UOA
Large Sample Neutron Activation Analysis of Ceramic Matrix Composites
I.E. Stamatelatos NCSR
Adsorption of ^{152}Eu from aqueous solutions using amorphous Titanium Phosphates
M. Kapnisti AUTH
External dose due to natural radioactivity and ^{137}Cs in marine organisms (RESRAD-BIOTA tool)
N. Marosi NTUA
Natural radioactivity and ^{137}Cs in marine sediments from Amvrakikos Gulf
H. Papaeftymiou UOP
Validating Global Models Using the Fukushima Nuclear Power Plant Accident
N. Evageliou CEA/CNRS

SESSION IV **Chair: A. Clouvas AUTH**

15:30 – 15:45 Modelling the vertical distribution of ^{137}Cs at the deep basins of the Aegean Sea
C. Tsabaris HCMR

15:45 – 16:00 Simulation of radionuclides transfer in the terrestrial environment using dosimetry models
M. Sotiropoulou AUTH

16:00 – 16:15 Use of natural and artificial radionuclides in marine sedimentology study of Shatt Al-Arab estuary
D.L. Patiris HCMR

16:15 – 16:30 Sedimentation Rates from Four Different Aquatic Environments at NE Mediterranean
G. Elefteriou NTUA

16:30 – 16:45 Estimation of the environmental impact of phosphogypsum stockpile in Schistos waste site
F. Papageorgiou UOA

16:45 – 17:00 Radiotoxic metals concentration measurement in sediments due to gold mining activities, Chalkidiki
F.K. Pappa NTUA

17:15 – 17:30 Indoor radon in Greek workplaces
A. Clouvas AUTH

17:30 – 17:45 In situ size distribution measurement of Radon decay products in thermal baths of Ikaria
M. Gini NCSR

17:45 – 18:00 Localization and Identification of Gamma Ray Sources Using Pixelated CdTe Detectors
C. Potiriadis GAEC

Saturday 21 June 2014

SESSION V **Chair: K. Langanke GSI**

09:00 – 09:15 Neutron star structure and collective excitations of finite nuclei
C. Moustakidis AUTH

09:15 – 09:30 Symmetry energy effects on isovector properties of neutron rich nuclei with Thomas-Fermi approach
M.C. Papazoglou AUTH

09:30 – 09:45 Nuclear study of the exotic neutrino interactions
D.K. Papoulias UOI

09:45 – 10:00 The role of e^--capture in neutrino-nucleosynthesis
P.G. Giannaka UOI

10:00 – 10:15 The response of an autonomous underwater telescope to high energy ν for the observation of GRBs
K. Valasi NCSR

10:15 – 10:30 Systematic cross section measurements of (α,γ) reactions for astrophysics
G. Provatas NCSR

10:30 – 10:45 Proton capture reactions in medium-heavy nuclei relevant to p-process nucleosynthesis
V. Foteinou NCSR

10:45 – 11:00 First cross-section measurements of the $^{112}Cd(p,\gamma)^{113}In^{*}$ reaction at astrophysical energies
A. Psaltis UOA

SESSION VI **Chair: I. Stamatelatos NCSR**

11:30 – 11:45 Use of everyday materials in retrospective nuclear accident dosimetry
K.C. Stamoulis UOI

11:45 – 12:00 Use of the OSL Dating and X-Ray Fluorescence Spectrometry Methods as Tools in Paleoseismology
I.M. Tsodoulos UOI

12:00 – 12:15 Measurements and Monte Carlo simulations of neutron production at a medical accelerator
E. Vagena AUTH

12:15 – 12:30 A Compton Camera for Medical Applications
M. Zioga UOA

12:30 – 12:45 Time Filtering and Image Detection Efficiency in the Time Resolved Optical Tomography
A.N. Raspomanikis UOA

12:45 – 13:00 TETRA-SPECT: A Four-Head Rotating System for Mammography
A. Tsilimidou UOA

LIST OF PARTICIPANTS

Title	Family Name	First Name	Affiliation
Mr	Anastasiadis	Anastasios	UOI
Ms	Androulakaki	Effrosyni	HCMR
Mr	Androulakis	Ioannis	AUTH
Ms	Asimakopoulou	Eleni Myrto	UOA
Prof.	Aslanoglou	Xenofon	UOI
Dr	Axiotis	Michail	NCSR 'Demokritos'
Ms	Bakola	Eleni	UOP
Dr	Balasi	Konstantina	NCSR 'Demokritos'
Ms	Bligoura	Natalia	UOI
Mr	Chanlaridis	Savvas	AUTH
Mr	Chatzarakis	Nikolaos	AUTH
Mr	Chatzipanagiotidis	Dimitrios	AUTH
Prof.	Clouvas	Alexandros	AUTH
Dr	Diakaki	Maria	NTUA
Ms	Dringa	Eleftheria	AUTH
Prof.	Eleftheriadis	Christos	AUTH
Dr	Eleftheriou	Georgios	HCMR
Ms	Eleftheriou	Afroditi	UOA
Ms	Eleme	Zinovia	UOI
Dr	Evangeliou	Nikolaos	IPSL/LSCE
Dr	Florou	Heleni	NCSR 'Demokritos'
Dr	Foteinou	Varvara	NCSR 'Demokritos'
Ms	Gavra	Eirini	UOA
Ms	Georgiadou	Anastasia	UOI
Ms	Giannaka	Panagiota	UOI
Ms	Gini	Maria	NCSR "Demokritos"
Dr	Harissopulos	Sotirios	NCSR "Demokritos"
Prof.	Ioannides	Konstantinos	UOI
Prof.	Ioannidou	Alexandra	AUTH
Ms	Kalamara	Andigoni	NTUA
Dr	Kalfas	Konstantinos	NCSR "Demokritos"
Ms	Kandyla	Anna-Maria	AUTH
Mr	Kanellakopoulos	Anastasios	UOA
Prof.	Kitis	Georgios	AUTH
Prof.	Kokkoris	Michael	NTUA
Prof.	Kosmas	Theocharis	UOI
Ms	Kotsina	Zoi	NCSR 'Demokritos'
Ms	Lagaki	Varvara	UOA
Dr	Lagoyannis	Anastasios	NCSR 'Demokritos',
Prof.	Lalazisis	Georgios	AUTH
Prof.	Langanke	Karlheinz	GSI Darmstadt
Mr	Lioutas	Georgios	AUTH
Prof.	Manolopoulou	Metaxia	AUTH
Ms	Marosi	Nafsika	NCSR 'Demokritos',
Ms	Marouda	Krinio	UOA
Prof.	Massen	Stylianos	AUTH
Prof.	Mavrommatis	Eirene	UOA

Prof.	Mertzimekis	Theo J.	UOA
Ms	Michalopoulou	Veatriki	NTUA
Dr	Moustakidis	Charalampos	AUTH
Prof.	Noli	Fotini	AUTH
Ms	Paneta	Valentina	NCSR Demokritos
Prof.	Papaefthymiou	Helen	UOP
Ms	Papageorgiou	Fani	UOA
Mr	Papanikolaou	Vasileios	AUTH
Mr	Papazoglou	Michail	AUTH
Mr	Papoulias	Dimitrios	UOI
Ms	Pappa	Filothei	HCMR
Dr	Patiris	Dionisis	HCMR
Dr	Patronis	Nikolas	UOI
Mr	Pernaris	George	AUTH
Dr	Petridou	Theodora	AUTH
Dr	Petropoulos	Nick	NTUA
Ms	Pierrou	Nectaria - Antonia	NTUA
Mr	Pliatskas	Christos	AUTH
Dr	Potiriadis	Constantinos	GAEC
Mr	Preketes-Sigalas	Konstantinos	NCSR 'Demokritos'
Dr	Provatas	Georgios	NCSR 'Demokritos'
Mr	Psaltis	Thanassis	UOA
Mr	Psonis	Vasilios	AUTH
Mr	Raspomanikis	Aristotelis-Nikolaos	UOA
Prof.	Savvidis	Hlias	AUTH
Mr	Sergentanis	Grigoris	AUTH
Dr	Singh	Pushpendra P	IITRPR
Mr	Sotiropoulou	Maria	NCSR 'Demokritos'
Prof.	Souliotis	Georgios	UOA
Dr	Stamatelatos	Ion	NCSR "Demokritos"
Mr	Stamatopoulos	Athanasios	NTUA
Dr.	Stamoulis	Konstantinos	UOI
Prof.	Stoulos	Stylianos	AUTH
Dr	Tsabaris	Christos	HCMR
Mr	Tsilias	Paschalis	AUTH
Ms	Tsilimidou	Artemis	UOA
Mr	Tsinganis	Andreas	NTUA
Dr	Tsodoulos	Ioannis	UOI
Mr	Tzifas	Ioannis	AUTH
Ms	Vagena	Eleni	AUTH
Mr	Vergioglou	Vasileios	AUTH
Dr	Veselsky	Martin	Slovak Aacademy of Sciences
Prof.	Vlastou	Roza	NTUA
Ms	Vonta	Nikoletta	UOA
Prof.	Zamani Valasiadou	Maria	AUTH
Ms	Zioga	Maria	UOA
Ms	Zoupa	Ioanna	UOA