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# HNPS Advances in Nuclear Physics

Editors  
N.G. Nicolis  
T.S. Kosmas

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### Symposium Info and Editorial Comments

*The Editorial Team*

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# **13<sup>ο</sup> ΣΥΜΠΟΣΙΟ ΤΗΣ ΕΛΛΗΝΙΚΗΣ ΕΤΑΙΡΕΙΑΣ ΠΥΡΗΝΙΚΗΣ ΦΥΣΙΚΗΣ**



**ΠΑΝΕΠΙΣΤΗΜΙΟ ΙΩΑΝΝΙΝΩΝ  
ΙΩΑΝΝΙΝΑ, 30-31 ΜΑΪΟΥ, 2003**



Local organizing Committee

N.G. Nicolis  
T.S. Kosmas

**ΑΙΘΟΥΣΑ ΣΕΜΙΝΑΡΙΩΝ  
ΚΤΗΡΙΟ ΠΛΗΡΟΦΟΡΙΚΗΣ  
(ΙΣΟΓΕΙΟ)**

## **SPONSORS**

(In alphabetical order)

- The Hellenic Nuclear Physics Society
- Kalabokas Travel
- Municipality of the City of Ioannina
- Συμβουλευτική Ιδέα
- The University of Ioannina

## SCIENTIFIC PROGRAMME

<b>Friday, 30 – 05 – 2003</b>	
<b>08:45 – 09:15</b>	<b>REGISTRATION</b>
<b>09:15 – 09:30</b>	Opening of the Symposium by the Governing Board of the Hellenic Nuclear Physics Society and the Organizing Committee
<b>09:30 – 11:00</b>	<b>SESSION I</b> Chair: <b>J.D. Vergados</b>
09:30 – 10:05	<u>Athena Pakou</u> , “Weakly bound nuclei”
10:05 – 10:50	<u>Claus Rolfs</u> , “Electron-screening effects on fusion reactions”
10:50 – 11:10	<u>T.Kozik</u> , Z. Majka, R. Planeta, P.Staszek, A. Wolanin-Statek, S. Kowalski, W. Zipper, J. Cibor, E. Kozik, and N.G. Nicolis, “Influence of model assumptions on the radial flow investigation in heavy ion collisions”

### **11:10 – 11:30 COFFEE BREAK**

<b>11:30 – 13:00</b>	<b>SESSION II</b> Chair: <b>I.E. Lagaris</b>
11:30 – 12:05	<u>J.D. Vergados</u> “The role of dark matter in modern cosmology: The prospects of direct detection of dark matter”
12:05 – 12:40	<u>D. Bonatsos</u> , D. Lenis, N. Minkov, P.P. Raychev, and P.A. Terziev, “Parameter-independent symmetries in nuclear structure”
12:40 – 13:00	<u>E. Mavrommatis</u> , “Short range correlations and two-body density matrix in nucleon systems”

### **13:00 – 15:00 LUNCH BREAK**

<b>15:00 – 16:05</b>	<b>SESSION III</b> Chair: <b>P. Assimakopoulos</b>
15:00 – 15:20	<u>S. Harissopoulos</u> , “SEENet: The South-East-European Nuclear Physics Network”
15:20 – 15:40	<u>S. Harissopoulos</u> , G. Kalyva, A. Spyrou, D. Bonatsos, A. Dewald, A. Fitzler, B. Saha, A. Linnemann, O. Möller, R. Vlastou, D.R. Nopoli, M. Axiotis, C. Rusu, N. Marginean, S.M. Lenzi, C.A. Ur and D.L. Balabanski, “The new critical point symmetries E(5) and X(5) in nuclear structure: Searching for empirical evidences via lifetime measurements”
15:40 – 16:00	<u>A. Spyrou</u> , G. Kalyva, S. Galanopoulos, P. Demetriou, and S. Harissopoulos, “Proton capture reactions of medium-heavy nuclei relevant to the p-process”

### **16:00 – 16:30 COFFEE BREAK**

<b>16:30 – 17:30</b>	<b>SESSION IV</b> Chair: <b>D. Bonatsos</b>
16:30 – 16:50	<u>S.E. Massen</u> , “Application of the information entropy to nuclei”
16:50 – 17:10	<u>G.A. Lalazissis</u> , D. Vretenar, N. Paar, and P. Ring, “Collectivity of the low-lying dipole strength in relativistic random phase approximation”
17:10 – 17:30	<u>V.Ch. Chasioti</u> and T.S. Kosmas, “Neutrino-nucleus cross-sections for exclusive processes”

### **17:30 – 18:30 Assembly of the Hellenic Nuclear Physics Society**

**21:00 Conference dinner at the “ΦΙΛΙΠΠΑΣ” tavern, at the lakeshore.**

**Saturday, 31 – 05 – 2003**

<b>09:30 – 11:00</b>	<b>SESSION V</b> Chair: <b>R. Vlastou</b>
09:30 – 10:20	N. Patronis, <u>P.A. Assimakopoulos</u> , D. Karamanis, F. Käppeler, S. Dababneh, M. Heil, R. Plag, and PE. Koehler, “Μέτρηση της ενεργού διατομής σύλληψης νετρονίου από το $^{135}\text{Cs}$ στις ενέργειες των 30 και 500 keV”
10:20 – 10:40	<u>D. Karadimos</u> , P. Assimakopoulos, K. Ioannides, N. Tsagas, P. Pavlopoulos, D. Karamanis, N. Patronis, K. Stamoulis, D. Cano Ott, V. Vlachoudis, P. Cennini, V. Ketlerov, V. Konovalov, and L. Zanini, “ $^{234}\text{U}$ (n, f), $^{235}\text{U}$ (n, f) and $^{238}\text{U}$ (n, f) cross-section measurements with the FIC detector”
10:40 – 11:00	<u>M. Φραγκοπούλου</u> , M. Μανωλοπούλου, Σ. Στούλος, A. Sosnin, M. Krivopustov, W. Westmeir, R. Brandt, M. Debeauvais και M. Ζαμάνη, “Κατανομή νετρονίων θρυμματισμού κατά μήκος ευρέως στόχου Pb”

**11:00 – 11:30 COFFEE BREAK**

<b>11:30 – 13:00</b>	<b>SESSION VI</b> Chair: <b>M. Zamani</b>
11:30 – 11:50	M. Kokkoris, <u>R. Vlastou</u> , C.T. Papadopoulos, X.A. Aslanoglou, E. Kossionides, and R. Grötzschel, “Measurements of energy loss of charged particles traveling in crystalline materials along the channeling direction”
11:50 – 12:10	<u>G. Perdikakis</u> , A. Spyrou, M. Kokkoris, Ch. Zarkadas, S. Harissopoulos, A.G. Karydas, and S. Kossionides, “ $^9\text{Be}(\text{d},\text{n}\gamma)$ : An alternative reaction for Be determination in materials”
12:00 – 12:30	K.C. Stamoulis, K.G. Ioannides, <u>A. Vlachogianni</u> , and C. Papachristodoulou, “Correlation of tritium concentrations in rainwater with cosmic rays variation: Preliminary results”
12:30 – 13:00	J. Kalf-Ezra, “Ιατρικές εφαρμογές της Πυρηνικής Φυσικής στο Πανεπιστήμιο Ιωαννίνων”

**13:00 – 15:00 LUNCH BREAK**

<b>15:00 – 16:30</b>	<b>SESSION VII</b> Chair: <b>S. Massen</b>
15:00 – 15:20	<u>T.S. Kosmas</u> , A. Faessler and R. Sahu, “Nuclear structure calculations for $^{72}\text{Ge}$ using deformed Hartree-Fock”
15:20 – 15:40	<u>P. Papakonstantinou</u> , E. Mavrommatis, J. Wambach, and V.Yu. Ponomarev, “Multipole response of Ni and Sn isotopes and its momentum dependence”
15:40 – 16:00	M.E. Grypeos, C.G. Koutroulos, K.J. Oyewumi, and <u>Th.A. Petridou</u> , “The HVT technique and the uncertainty relation for central potentials”
16:00 – 16:20	<u>N. Panagiotidis</u> and T.S. Kosmas, “Study of t- and m- in the field of heavy nuclei using neural network techniques”
16:20 – 16:40	<u>N.G. Nicolis</u> “Development of a Monte-Carlo evaporation code for multi-fragment emission”

<b>17:00 – 18:00</b>	<b>Users meetings</b>
	Meeting of the Astro-Particle Consortium (APC).
	Neural – Networks meeting.

**18:00 End of the Symposium**

## List of Participants

1. **Aggelis, Evaggelos.** The University of Ioannina.
2. **Assimakopoulos, Panagiotis.** Department of Physics. The University of Ioannina.
3. **Athanassopoulos, Sotiris.** Nuclear and Particle Physics Division, University of Athens.
4. **Bonatsos, Dennis.** Institute of Nuclear Physics. NCSR Democritos.
5. **Chasioti, Vassiliki.** Department of Physics, The University of Ioannina.
6. **Divari, Paraskevi.** The University of Ioannina.
7. **Eleftheriadis, Christos.** Division of Nuclear Physics and Elementary Particles,
8. **Fragopoulou, Marianthi.** Aristotle University of Thessaloniki, Thessaloniki, Greece.
9. **Hamalis, Gerasimos.** The University of Ioannina, Ioannina, Greece.
10. **Harissopoulos, Sotirios.** Institute of Nuclear Physics. NCSR Democritos.
11. **Ioannides, Costas.** Department of Physics, The University of Ioannina.
12. **Kalef-Ezra, John.** Laboratory of Medical Physics. School of Medicine and General University Hospital of Ioannina. The University of Ioannina.
13. **Kalyva, Yiolanda-Georgia.** Institute of Nuclear Physics. NCSR Democritos.
14. **Karadimos, Dimitris.** Department of Physics, The University of Ioannina.
15. **Karamanis, Dimitrios.** Department of Physics. The University of Ioannina.
16. **Kosmas, Theoharis.** Department of Physics, The University of Ioannina.
17. **Kozik, E. H.** Niewodniczanski Institute of Nuclear Physics. Krakow. Poland.
18. **Kozik, Tomasz.** Institute of Physics. Jagiellonian University. Krakow. Poland.
19. **Lagoyannis, Anastassios.** Institute of Nuclear Physics. NCSR Democritos.
20. **Lalazissis, Georgios.** Department of Theoretical Physics. Aristotle University of Thessaloniki, Thessaloniki, Greece.
21. **Leonardos, Ioannis.** Department of Biological Applications, The University of Ioannina.
22. **Manolakos, Ioannis.** The University of Ioannina.
23. **Massen, S.E.** Department of Theoretical Physics. Aristotle University of Thessaloniki, Thessaloniki, Greece.
24. **Mavrommatis-Fountou, Eirini.** Nuclear and Particle Physics Division, University of Athens.
25. **Nicolis, Nikolaos.** Department of Physics, The University of Ioannina.
26. **Ntouska, Lambrini.** Department of Mathematics, The University of Ioannina.
27. **Pakou, Athena.** Department of Physics, The University of Ioannina.
28. **Panagiotides, Nikolaos,** Department of Physics, The University of Ioannina.
29. **Papachristodoulou, Christina.** Department of Physics, The University of Ioannina.
30. **Papakonstantinou, Panagiota.** Nuclear and Particle Physics Division, University of Athens.
31. **Patiris, Dennis.** Department of Physics. The University of Ioannina.
32. **Perdikakis, George.** Institute of Nuclear Physics. NCSR Democritos.
33. **Petridou, Theodora.** Department of Theoretical Physics. Aristotle University of Thessaloniki, Thessaloniki, Greece.
34. **Rolfs, Claus.** Institut für Physik mit Ionenstrahlen, Ruhr-Universität Bochum, Germany.
35. **Savvidis, Elias,** Nuclear Physics Laboratory, Aristotle University of Thessaloniki, Thessaloniki, Greece.
36. **Spyrou, Artemisia.** Institute of Nuclear Physics. NCSR Democritos.
37. **Vlachogianni, Areti.** The University of Ioannina.
38. **Vlastou, Rosa.** Department of Physics, National Technical University of Athens.
39. **Zamani-Valasiadou, Maria.** Nuclear Physics Laboratory, University of Thessaloniki.

## List of papers

1. J.D. Vergados “The role of dark matter in modern cosmology: The prospects of direct detection of dark matter”
2. Claus Rolfs, “Electron-screening effects on fusion reactions”
3. T.Kozik, Z. Majka, R. Planeta, P.Staszek, A. Wolanin-Statek, S. Kowalski, W. Zipper, J. Cibor, E. Kozik, and N.G. Nicolis, “Influence of model assumptions on the radial flow investigation in heavy ion collisions”
4. Athena Pakou, “Weakly bound nuclei”
5. D. Bonatsos, D. Lenis, N. Minkov, P.P. Raychev, and P.A. Terziev, “Parameter-independent symmetries in nuclear structure”
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9. A. Spyrou, G. Kalyva, S. Galanopoulos, P. Demetriou, and S. Harissopoulos, “Proton capture reactions of medium-heavy nuclei relevant to the p-process”
10. S.E. Massen, “Application of the information entropy to nuclei”
11. G.A. Lalazissis, D. Vretenar, N. Paar, and P. Ring, “Collectivity of the low-lying dipole strength in relativistic random phase approximation”
12. V.Ch. Chasioti and T.S. Kosmas, “Neutrino-nucleus cross-sections for exclusive processes”
13. Christos Eleftheriadis, “Measurements of fission cross sections of Actinides in the n\_TOF facility at CERN”.
14. N. Patronis, P.A. Assimakopoulos, D. Karamanis, F. Käppeler, S. Dababneh, M. Heil, R. Plag, and PE. Koehler, “Μέτρηση της ενεργού διατομής σύλληψης νετρονίου από το  $^{135}\text{Cs}$  στις ενέργειες των 30 και 500 keV”
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## Symposium Photo

