CONTACT INFORMATION

Academic position: Assistant Professor of Theoretical Nuclear Phycics
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Google Scholar: https://scholar.google.com/citations?user=kGEfwn8AAAAJ&hl=el.
Scopus ID: https://www.scopus.com/authid/detail.uri?authorId=16402510400
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ResearchGate: https://www.researchgate.net/profile/Vaia_Prassa

CURRENT POSITION

**Assistant Professor**, Physics Department, School of Sciences, University of Thessaly, Greece.

RESEARCH INTERESTS

Theoretical Nuclear Physics - Nuclear Structure - Nuclear Reactions - Heavy Ion Reactions - Nuclear Fission - Computational Physics - Machine Learning.

BRIEF CV

Dr. Vaia Prassa (V.P.) received her Bachelor degree in Physics in 2003 and her Master degree in Computational physics in 2005 from Aristotle University of Thessaloniki. In 2010 she was awarded a PhD in Theoretical Physics. As a master and later PhD student, V.P. developed a solid command of nuclear theory, quantum physics, quantum field theory and reaction dynamics. Her PhD work included the study, extension and improvement of covariant transport theories for relativistic heavy ion collisions. Focusing on simulation methods of complex phenomena and processes, V.P. gained valuable experience in developing advanced computational codes for modeling the dynamics of nuclear systems, and in applying these powerful theoretical tools in studies of nuclear reactions. During her research stays at LNS-INFN Catania, and Ludwig Maximilian University Munich, she worked with some of the most renowned researchers in the field of reaction theory. Working in the field of theoretical nuclear physics Dr. V. Prassa acquired a sound foundation for a successful career in research.

As a postdoctoral fellow at University of Thessaly (Stavros Niarchos Foundation Fellowship, 2017 2021), University of Zagreb (Marie Skodowska Curie FP7 PEOPLE 2011 COFUND-NEWFELPRO Fellowship, 2014-2016), University of Jyvaskyla (FiDiPro the Finland Distinguished Professor Programme, 2012-2014), Aristotle University (Greek Scholarship Foundation, 2010-2012), V.P. engaged in studies of complex nuclear phenomena that determine the structure of super-heavy atomic nuclei and the process of nuclear fission. V.P.s research activity covers a wide range of nuclear phenomena: nuclear ground state properties and excitations, nuclear reactions, nuclear fission, and heavy ion collisions. At the same time, her research includes the development and application of mathematical methods, algebraic models and computational tools in the modeling and simulation of physical phenomena.

The results of her research are published in 38 articles in international peer-reviewed journals, and conference proceedings. These publications have attracted considerable interest not only among nuclear theorists, but also in the community of nuclear experimentalists. She hwas invited as a speaker at international conferences (SDANCA 2021, EURISOL 2013) and international seminar programs (Kavli Institute for Theoretical Physics China (KITPC) Beijing - 2012 and Institute for Nuclear Theory (INT) Program, University of Washington - USA - 2011). She was also invited to present seminar talks at the GANIL research center in Caen, France (2011) and the National Center for Scientific Research (NCSR) Democritus (2010 and 2021) and the Kapodistrian University of Athens (2022). A poster at the Gordon Research Conference, U.S. 2011 was awarded a prize and an oral presentation. In April 2021 she was invited to the Hellenic Preliminaries of the PLANCKS 2021 competition on Theoretical Physics organized by the students of the Physics department of the University of Thessaly. In total she has presented her work in 35 scientific conferences, workshops and summer schools and has participated in an additional 6.

In addition to being engaged in research activities, V.P. also acquired teaching experience as an adjunct Lecturer in Greece and abroad (Aristotle University, University of Thessaly, Hellenic Open University, University of Zagreb, ATEI of Central Greece, ATEI of Thessaly) in several bachelor and master courses including Physics, Mathematics, Informatics and Education of Natural Sciences. Her teaching duties and responsibilities included the supervision/co-supervision of five undergraduate diploma theses and one master thesis.

## Education

[2005-2009] **Ph.D in Physics, Physics Department, Aristotle University of Thessaloniki (AUTH) , Greece**. Thesis: *Theoretical analysis of heavy ion collisions.* Advisor: Professor G. A. Lalazissis. Area of Study: Theoretical Nuclear Physics.

[2003-2005] **MS.c, Computational Physics, Physics Department, AUTH , Greece.** Thesis: *Particle production in heavy ion collisions and the density dependence of the inelastic cross section.* Advisor: Professor G. A. Lalazissis. Area of Study: Theoretical Nuclear Physics.

[1999-2003] **BS.c, Physics, Physics Department, AUTH, Greece**. Graduation Mark: 8.90/10 (graduation with honors, in the top 1% of the year). Thesis: *Study of the phenomenon of ageing at the analog detectors of the ATLAS muon spectrometer.* Advisor: Professor Ch. Petridou. Area of Study: Experimental High Energy Physics.

## Computer Skills

**Operating Systems**: Linux, Mac OS and MS Windows.
**Programming languages**: Python/ipython, C/ $C^{++}$, FORTRAN 77/95, Mathematica and ROOT.
**Software**: TEX, LaTeX, BibTeX, Beamer, Open Office, Microsoft Office and other common productivity packages for Windows, Mac OS X, and Linux platforms.
**GRID** user: 1. SEE-EGEE-HellasGrid infrastructure 2. LNR-Cluster University of Zagreb 3. Finnish Grid Infrastrucure (FGI).

## Languages

**Greek**: Native.
**English**: Fluently, spoken and written. Certificate of Proficiency in English, University of Michigan.
**Italian**: Good, spoken and written.

## Fellowships Scholarships Awards

• Stavros Niarchos Foundation, Post-doctoral research scholarship, 2017-2021.
• Marie Skodowska Curie, FP7-PEOPLE-2011-COFUND-NEWFELPRO, postdoctoral research fellowship, University of Zagreb, Croatia, 2014-2106.
• Best poster award, Gordon Conference on Nuclear Chemistry, Intersections Between Structure and Reactions: Pushing the Frontiers of Nuclear Science', Colby-Sawyer College, New London, NH, 2011.
• Post-doctoral research scholarship of the State Scholarships Foundation, 2010-2011.
• PhD scholarship of the State Scholarships Foundation, after succeeding (first in classification) to the corresponding examinations, 2005 - 2009.
• Scholarship of the Operational Program for Education and Initial Vocational Training (O.P. "Education"), MS.c. in Computational Physics, Physics Department, AUTH (first in class), 2005.
• Scholarship of the State Scholarships Foundation, Bachelor in Physics, AUTH, 2000-2001.
• Scholarship of the State Scholarships Foundation, Bachelor in Physics, AUTH, 1999-2000.

## Research Activity

**Research Positions**

- Postdoctoral researcher, University of Thessaly, Department of Physics, 3/2022 - 3/2024.
- Postdoctoral researcher, University of Thessaly, Department of Informatics and Telecommunications, 2017 - 2021.
- Postdoctoral researcher, University of Zagreb, Department of Physics, 2014-2016.
- Postdoctoral researcher, University Jyväskylä, Department of Physics, 2012-2014.
- Postdoctoral researcher, Aristotle University, Department of Physics, 2010-2012.

**Research Visitor**

- GSI-Darmstadt, Germany in collaboration with the group of Prof. D. Ackermann.
- Kavli Institute for Theoretical Physics China at the Chinese Academy of Sciences (KITPC), Beijing, China.
- Physics Department, University of Zagreb, Croatia in collaboration with the group of Prof. D. Vretenar.
- Institute for Nuclear Theory (INT), University of Washington, Seattle, Washington, U.S.A.
- LNS-INFN, Catania in collaboration with the group of Prof. M. Di Toro.
- Ludwig Maximilian Universität (LMU), Munich, Germany in collaboration with Prof. H. H. Wolter and Doct. T. Gaitanos.

**Research projects**

- [2017-2021] Postdoctoral scholarships by the Stavros Niarchos Foundation, University of Thessaly. PI E. Tsoukalas.
- [2014-2016] Marie Skodowska Curie-FP7 -PEOPLE - 2011 - COFUND - NEWFELPRO. Research fellowship, "Next-generation nuclear energy density functionals", Croatia. Project manager: V. Prassa.

- [2012-2014]: FiDiPro - the Finland Distinguished Professor Programme, project PI Prof. J. Dobaczewski, Physics Department, University of Jyväskylä.
- [2005-2008]: "Reformation of the academic course program of the Physics Department of AUTH", AUTH.
- [2005-2007]: "PYTHAGORAS II (General): Theoretical research of nuclear matter problems", AUTH.
- [2007]:"Updating the Library System of the AUTH", AUTH.
- [2005]:"Computational Physics", AUTH.
- [2003-2004]: "Design-Construction-check of high mechanical accuracy apparatus and development of methods for their mass production", AUTH.

**Conferences/Workshops/Symposium/Summer Schools/Invited Seminars**
**Overview**: Dr. Prassa has given 7 invited seminar talks and presented her work in 35 scientific conferences, workshops and summer schools held in Europe, USA and China.

**Publications**
**Overview**: 1 PhD dissertation, 12 publications in peer-review journals, 1 publications in non-peer review journals, 25 publications in conferences proceedings, 1 book as an assistant editor.
Total Citations in Google Scholar: 255, h-index: 8 (March 2024)
https://scholar.google.com/citations?user=kGEfwn8AAAAJ&hl=el.

**Selected puplications**

1. **"Octupole shape phase transitions and critical points in neutron-rich actinides"**
   Vaia Prassa
   Eur. Phys. J. A 58 (9) 183 (2022)
   https://doi.org/10.1140/epja/s10050-022-00835-2

2. **"Shape evolution of Hg isotopes within the covariant density functional theory"**
   V. Prassa and K.E. Karakatsanis
   International Journal of Modern Physics E, Vol. 30, No. 07, 2150054 (2021)
   https://dx.doi.org/10.1142/S0218301321500543

3. **"Two quasiparticle K-isomers within the covariant density functional theory"**
   K. Karakatsanis, G.A Lalazissis, **V. Prassa**, and P. Ring
   Phys. Rev. C 102, 034311 (2020);
   https://doi.org/10.1103/PhysRevC.102.034311

4. **"High-K isomers in transactinide nuclei close to N = 162"**
   **V. Prassa**, Bing-Nan Lu, T. Niksic, D. Vretenar
   Phys. Rev. C 91, 034324 (2015);
   http://journals.aps.org/prc/abstract/10.1103/PhysRevC.91.034324.

5. **"Structure of transactinide nuclei with relativistic energy density functionals"**
   **V. Prassa**, T. Niksic, D. Vretenar
   Phys. Rev. C 88, 044324 (2013).
   http://journals.aps.org/prc/abstract/10.1103/PhysRevC.88.044324.

6. **"Relativistic Energy Density Functional Description of Shape Transition in Superheavy Nuclei"**
   **V. Prassa**, T. Nikšić, G. A. Lalazissis, D. Vretenar
   Phys. Rev. C 86, 024317 (2012).
   http://link.aps.org/doi/10.1103/PhysRevC.86.024317

7. **"Probing the nuclear matter at high baryon and isospin density with heavy ion collisions"**
   Di Toro M., Colonna M., Ferini G., Giordano V., Greco V., Plumari S., Rizzo J., Liu B., Baran V., Gaitanos T., **Prassa, V.**, Wolter H. H.
   Int. J. Mod. Phys. **E** 19 856-868, 2010.
   http://dx.doi.org/10.1142/S021830131001531X

8. **"Isospin Effects on Strangeness in Heavy-Ion Collisions"**
   **V. Prassa**, T. Gaitanos, G. Ferini, M. Di Toro, G. A. Lalazissis and H. H. Wolter
   Nucl. Phys. **A** 832 88-99 (2010).
   http://dx.doi.org/10.1016/j.nuclphysa.2009.11.009

9. **"The High-Density Symmetry Energy in Heavy Ion Collisions"**
   H. H. Wolter, **V. Prassa**, G. A. Lalazissis, T. Gaitanos, G. Ferini, M. Di Toro and V. Greco
   Progress in Particle and Nuclear Physics, Volume 62, Issue 2, April 2009, Pages 402-406.
   http://dx.doi.org/10.1016/j.ppnp.2008.12.010

10. **"Isospin Dynamics in Heavy Ion Collisions: from Coulomb Barrier to Quark Gluon Plasma"**
    M. Di Toro, V. Baran, M. Colonna, G. Ferini, T. Gaitanos, V. Giordano, V. Greco, Liu Bo, M. Zielinska-Pfabe, S. Plumari, **V. Prassa**, C. Rizzo, J. Rizzo, H.H. Wolter
    Progress in Particle and Nuclear Physics, Volume 62, Issue 2, April 2009, Pages 389-401.
    http://dx.doi.org/10.1016/j.ppnp.2008.12.038

11. **"Constraining the Symmetry Energy: A Journey in the Isospin Physics from Coulomb Barrier to Deconfinement"**
    M. Di Toro, M.Colonna, V.Greco, G.Ferini, C.Rizzo, J.Rizzo, V.Baran, T.Gaitanos, **V. Prassa**, H.H.Wolter, M.Zielinska-Pfabe
    Int. J. Mod. Phys. **E** 17 , 1799 (2008).
    http://dx.doi.org/10.1142/S0218301308010799

12. **"In-medium effects on particle production in heavy ion collisions"**
    **V. Prassa**, G. Ferini, T. Gaitanos, H. H. Wolter, G. A. Lalazissis and M. Di Toro
    Nucl. Phys. **A** 789, 311 (2007).
    http://dx.doi.org/10.1016/j.nuclphysa.2007.02.014

TEACHING EXPERIENCE

Dr. Prassa provides/has provided independent and auxiliary teaching work (at undergraduate and postgraduate level) in Greece and abroad (Aristotle University of Thessaloniki, University of Thessaly, Hellenic Open University, University of Zagreb, ATEI of Central Greece, ATEI of Thessaly) in Physics, Mathematics, Informatics and Science Education: Quantum Mechanics, Nuclear Physics I & II, Particle Physics I & II, Theoretical Mechanics I and II, Mathematical Methods of Physics I & II, General Physics I, Physics I & II, Didactics of Physics, Didactics of Chemistry, Numerical Analysis, Linear Algebra, Computers and Applications, Didactics of Informatics. She has supervised/co-supervised five undergraduate diploma theses and one master thesis.