

Curriculum Vitae

General information

Name: Theodor Popa

Date of birth: 23.07.1996

Nationality: Romanian

E-mail: popa.theodor@theory.nipne.ro

Academic affiliation: Doctoral School of Physics, University of Bucharest

Professional affiliation: Research assistant in Department of Theoretical Physics - Horia Hulubei National Institute for Physics and Nuclear Engineering (IFIN-HH), Magurele-Bucharest

Education

PhD in Theoretical and Computational Physics, University of Bucharest [2020-2026]

Thesis title: *Seniority-Zero States and Proton-Neutron Pairing in Atomic Nuclei*

MSc in Theoretical and Computational Physics, Faculty of Physics, University of Bucharest [2018-2020]

Thesis title: *Pair Condensation and Seniority-Zero Excited States in the PBCS approach*

BSc in Physics, Faculty of Physics, University of Bucharest [2015-2018]

Thesis title: *The Algebra of the Supersymmetry Group*

Mention: Graduated Valedictorian

Publications

- *Excited States of Zero Seniority based on a Pair Condensate*
T. Popa, N. Sandulescu, and M. Sambataro, Phys. Rev. C, 107, (2023) 034318
- *Pair Condensation in the Excited States of Nuclei*
T. Popa, N. Sandulescu, and M. Sambataro, Il Nuovo Cimento C, 47, (2024) 45
- *Proton-Neutron Pairing in $N = Z$ Nuclei within the Quark-Meson-Coupling Energy Density Functional*
T. Popa, N. Sandulescu, and D. Gambacurta, arXiv:2603.25359, submitted to Journal of Physics G

Presentations

Talks

- *Pair Condensation in the Excited states of Nuclei*, 7th International Conference on the Collective Motion in Nuclei under Extreme Conditions (COMEX7), Catania, Italy, 11-16.06.2023
- *Excited states of zero seniority built on a pair condensate*, Experimental and Theoretical Aspects of Neutron-Proton Pairing and Quartet Correlations in Atomic Nuclei, Saclay, France, 04-08.09.2023
- *Proton-neutron pairing and quartetting in $N=Z$ nuclei in the framework of the Quark-Meson Coupling Model*, Carpathian Summer School of Physics (CSSP25), Sinaia, Romania, 22.06-03.07.2025

Posters

- *Pair condensation in excited states of neutron-rich nuclei*, 5th International Conference on Nuclear Structure and Dynamics (NSD2024) Valencia, Spain, 27-31.05.2024

Academic and Research Experience

MSc studies

- Courses on Advanced Quantum Mechanics, Quantum Statistical Mechanics, Many-Body Theory, Group Theory, Quantum Field Theory (with an emphasis on Quantum Electrodynamics) and Hadronic Matter Physics

PhD studies

- Courses on advanced computational methods in physics, the Standard Model and beyond Standard Model physics

PhD research

- Energy density functionals (EDF) for nuclear systems; Skyrme EDF, Relativistic Mean Field, Quark-Meson Coupling EDF
- Pairing correlations in the ground and excited states of neutron-rich nuclei: BCS, projected-BCS, Hartree-Fock-Bogoliubov, Richardson model
- Isovector and isoscalar proton-neutron pairing in $N=Z$ nuclei: Quartet Condensation Model approach, $SO(5)$ and $SO(8)$ models

Technical Skills

- Numerical methods and simulation
- Symbolic computation (Cadabra)
- Programming: FORTRAN, Matlab, R