Horia Hulubei
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Pozitie: Asistent Cercetare în cadrul proiectului EURATOM-RO/WPBB2

Institutul Național de Cercetare-Dezvoltare pentru Fizică și Inginerie Nucleară „Horia Hulubei”, Departamentul de Fizică Nucleară (DFN), angajează Asistent Cercetare (cercetător junior), pe o perioadă determinată, până la data de 30.06.2025, cu posibilitatea de prelungire până la finalizarea proiectului (31.12.2026), cu normă intreagă, în cadrul proiectului ”*Participarea Romaniei la EUROfusion WPBB si cercetari complementare*” (www.nipne.ro/proiecte/pn4/5-projects.html, www.nipne.ro/proiecte/pn3/57-proiecte.html).

Cerințe pentru ocuparea postului:
- Doctorand în domeniul fizica nucleară/teoretică aplicată, cu cunoaștere aprofundată a mecanismelor de reacții nucleare și fizică teoretică, în vederea **continuării independente a tematicii proiectului**
- Cunoștințe IT, programe matematice de prelucrare de date, programe de simulare
- Limbi străine: limba engleză
- Cunoașterea tematicii și bibliografiei menționate în anunț

Abilităţi, calităţi şi aptitudini: spirit de echipă, abilități de comunicare, lucru independent

Responsabilități principale:
- Asimilarea cunoștințelor necesare îndeplinirii atribuțiilor specifice activității în cadrul proiectului, si continuarii independente a tematicii proiectului dupa finalizarea acestuia
- Pregătirea și perfecționarea continuă în tematica postului
- Participarea la activități de suport IT si ***EUROfusion*** (https://www.euro-fusion.org/)

Candidații interesați sunt rugați să trimită aplicația formată din CV și lista de lucrări publicate (un singur fișier *.pdf) la adresa: vlad.avrigeanu@nipne.ro .

Aplicațiile se primesc până la completarea poziției.

Bibliogrfie pentru interviu:
1. E. Gadioli and P.E. Hodgson, *Pre-Equilibrium Nuclear Reactions*, Claredon, Oxford, 1992
2. J.J. Cowan *et al*., Rev. Mod. Phys. **93**, 015002 (2021)
3. M. Avrigeanu *et al*., J. Fusion Energy **43**, 15 (2024); Phys. Rev. C **107**, 034613 (2023)
4. M. Avrigeanu and V. Avrigeanu, Phys. Lett. B **858,** 139078 (2024)
5. A.J. Koning, *et al*., Eur. Phys. J. A **59**:131 (2023); *TALYS Manual*, http://www.talys.eu

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Open Position: Research Assistant, project EURATOM-RO/WPBB2

The National Institute for Research-Development in Physics and Nuclear Engineering "Horia Hulubei”, Department of Nuclear Physics (DFN), has an open position for Research Assistent (early researcher) for a definite duration, until 30.06.2025, with the possibility of extension until the completion of the project (on 31.12.2026), full time, within the Project: *”Romanian participation at EUROfusion WPBB and complementary research*” (*e.g.*, https://www.nipne.ro/nationally-funded-projects.php, https://www.nipne.ro/proiecte/pn3/57-proiecte.html).

Requirements for filling the position:

- PhD-student in nuclear physics/applied nuclear theory, with deeper understanding of nuclear reaction mechanisms, providing the candidate competence **to continue alone the project topic**
- Knowledge of IT, mathematical data processing software, simulation software
- Foreign languages: English
- Knowledge of the topics and bibliography specified in the announcement

Skills and abilities: team player, communication skills, working independently.

Main responsibilities:
- Acquiring the knowledge required to fulfil tasks specific to this project and the independent progress of the topic next to the project completion
- On-going training and honing in the field of the position topics
- Taking part in various IT support and ***EUROfusion*** (https://www.euro-fusion.org/) activity

The interested candidates are asked to send their application containing the CV with the list of publication (one pdf file), to the following e-mail address: vlad.avrigeanu@nipne.ro.

Applications are received until the position is filled.

Interview Bibliography:

1. E. Gadioli and P.E. Hodgson, *Pre-Equilibrium Nuclear Reactions*, Claredon, Oxford, 1992
2. J.J. Cowan *et al*., Rev. Mod. Phys. **93**, 015002 (2021)
3. M. Avrigeanu *et al*., J. Fusion Energy **43**, 15 (2024); Phys. Rev. C **107**, 034613 (2023)
4. M. Avrigeanu and V. Avrigeanu, Phys. Lett. B **858,** 139078 (2024)
5. A.J. Koning, *et al*., Eur. Phys. J. A **59**:131 (2023); *TALYS Manual*, http://www.talys.eu

https://www.fizica.unibuc.ro/Doctorat/Prezentare/Conducatori

Vlad AVRIGEANU https://www.nipne.ro/5055-staff_info.html
vlad.avrigeanu@nipne.ro
ResearcherID https://publons.com/researcher/2808819/vlad-avrigeanu/

Reacţii nucleare

Studiul reacţiilor induse de nucleoni/particule alfa la energii joase (<50 MeV)
a) evaluarea consistentă a reacţiilor induse de nucleoni
(*e.g.,* Eur. Phys. J. A **57**, 54, 2021; Front. Phys. **11**, 1142436, 2023)
b) studiul reacţiilor induse de particule alfa pentru fuziune nucleară (ITER/IFMIF,
e.g., Phys.Rev.C **106**, 024615, 2022)
c) descrierea emisiei alfa pentru fuziune nucleară
(*e.g.,* Eur. Phys. J A **58**,189, 2022; Front. Phys. **11**, 1247311, 2023)

- Studiul reacţiilor induse si/sau emisia de particule alfa pentru fuziunea nucleară [*e.g.,* Front. Phys. **11**, 1247311 2023); Phys. Lett. B **858**, 139078 (2024)], si
- Studiul reacţiilor induse de deuteroni la energii joase pentru fuziunea nucleara [*e.g.,* Phys. Rev. C **107**, 034613 (2023); J. Fus. Energy **43**, 15 (2024)].

https://www.nipne.ro/5055-staff_info.html

Vlad Gabriel Avrigeanu
DFN
5315 / 0214046125
vavrig@nipne.ro
Curriculum Vitae

Update CV & Publications

Add / Update Photo

01. Giant quadrupole resonances within neutron-induced α-partic
M. Avrigeanu and V. Avrigeanu
Phys. Lett. B 858, 139078 (2024)

02. Modeling of Deuteron-Induced Reactions on Molybdenum at Low E
M. Avrigeanu, E. Simeckova, J. Mrazek, C. Costache, and V. Avrigeanu
J. Fusion Energy 43, 15 (2024)

03. Consistent assessment of neutron-induced activation of 93Nb
Vlad Avrigeanu and Marilena Avrigeanu
Front. Phys. 11:1142436 (2023)

04. Consistent optical potential for incident and e
Nonstatistical processes induced by neutrons
M. Avrigeanu and V. Avrigeanu
Phys. Rev. C 107, 034613 (2023)

05. Constrained model assumptions using recent
144Sm
Vlad Avrigeanu and Marilena Avrigeanu
Front. Phys. 11:1247311 (2023)

06. Structural material nuclear data basic researc
Marilena Avrigeanu and Vlad Avrigeanu
Front. Phys. 11:1172697 (2023)

07. Advanced breakup-nucleon enhancement of
M. Avrigeanu, D. Rochman, A. J. Koning, U. Fischer
Eur. Phys. J. A 58, 3 (2022)

08. Charged-particle optical potentials tested by
59Cu(p,α)56Ni reaction
V. Avrigeanu and M. Avrigeanu
Phys. Rev. C 106, 024615 (2022)

09. Validation of an optical potential for incident
A~60 mass range II. Neutron–induced reactio
V. Avrigeanu and M. Avrigeanu
Eur. Phys. J. A 58, 189 (2022)

10. Deuteron-induced reactions on natZr up to 60

APPLIED NUCLEAR THEORY
[Report IAEA-190 (IAEA, Vienna, 1976)]

https://www.nipne.ro/proiecte/pn4/5-projects.html

Project List » Romanian cooperation to EUROfusion WPBB and complementary research

ROMANIAN COOPERATION TO EUROFUSION WPBB AND COMPLEMENTARY RESEARCH
www.nipne.ro/proiecte/pn4/5-projects.html

Acronym: **WPBB2-RO**
Contracting Authority: **IFA**
Number / Date of the contract: **EURATOM-RO/CDI/2024_004 / 2024-11-21**
PN IV, Subprogramul 5.9.2, Modulul EURATOM-RO Fuziune
Project Manager: **Vlad Avrigeanu**
Partners:
Starting date / finishing date: **2024-11-21 / 2026-12-31**
Project value: **1.059.623** RON
Abstract: The work performed within the framework of 'NuclearData Evaluations' task (BB-S.05.02-T001/T004/ T005/ T007), 'Work Package Breeding Blanket' (WPBB), within 'Fusion Technology Department' (FTD) of EUROfusion Consortium (https://www.euro-fusion.org/) between 2022-2024 https://www.nipne.ro/proiecte/pn3/57-proiecte.html), is continued following 'RDI projects for participation in EUROfusion project' (EURATOM-RO/CDI/2024-2, www.ifa-mg.ro/euratom-fuziune/docs/2024/Lista rezultate competitie EURATOM 2024.pdf) competition, with the respect to the development of Nuclear Data files which are needed and requested for the generation, maintenance and validation of nuclear data libraries relevant for ITER, DEMO, and IFMIF (https://prompt.ifa-mg.ro/projects). On the other hand, a segment of the work on model assumptions and parameters which is needed to obtain the results asumed to be achieved by the EUROfusion-WPBB-S.05.02-T007 'Task Specification', is carried on within a complementary side of this project based on the EUROfusion/WPBB evaluation (https://prompt.ifa-mg.ro/projects/89/edit).

Objectives: The main objectives of this task will be (1) evaluation of deuteron-induced reaction data of structural materials and update of the d-induced TENDL data library as required for activation analyses of the IFMIF-DONES facility, and (2) further analysis of the optical model potential for alpha particles and alpha-particel emission which is relevant for the evaluation of gas production and radiation damage data. The corresponding activities will concern particularly (1) evaluation of deuteron-induced reaction cross sections at the energies ?50 MeV update on the basis of improved models for the interaction of deuterons with low and medium mass nuclei, on the basis of proper account of contributions of all involved reaction mechanisms as the breakup, stripping, pick-up, pre-equilibrium and evaporation processes, including the assessment of the related procedures recently involved in TALYS (http://www.talys.eu/) nuclear model calculations, and (2) evaluation of fast-neutron induced alpha emission data on the basis of consistent nuclear model calculation of reaction cross sections, namely by using model parameters established through analysis of distinct independent data and performed for all available data for various reaction channels and isotopes of structural materials including EUROFER and SS-316.

THE STAGES OF THE PROJECT AND DELIVERY DATES
1. **Open Position PhD-student/post-doc WPBB2-RO** (2025-06-30) **Results**
2. **Supplementary material on the assessment of particular alpha-particle emission induced by fast-neutrons on structural materials around 10 MeV and advanced analysis of isomeric cross sections of deuteron-induced reactions on A=90-100 nuclei** (2024-12-31) **Results**
3. **Analysis of the newest data of deuteron-induced reactions on A~90 nuclei including isomeric cross sections, and neutron-induced alpha-emission including isomeric cross sections** (2025-12-31)
4. **Analysis of deuteron-induced reactions, and neutron-induced alpha-emission** (2026-12-31)

RESULTS
PUBLISHED ARTICLES
RESEARCH TEAM

https://www.nipne.ro/proiecte/pn4/5-projects.html

APPLIED NUCLEAR THEORY
[Report IAEA-190 (IAEA,Vienna,1976)]

Project List » Romanian cooperation to EUROfusion WPBB and complementary research

ROMANIAN COOPERATION TO EUROFUSION WPBB AND COMPLEMENTARY RESEARCH
www.nipne.ro/proiecte/pn4/5-projects.html

Acronym: **WPBB2-RO**
Contracting Authority: **IFA**
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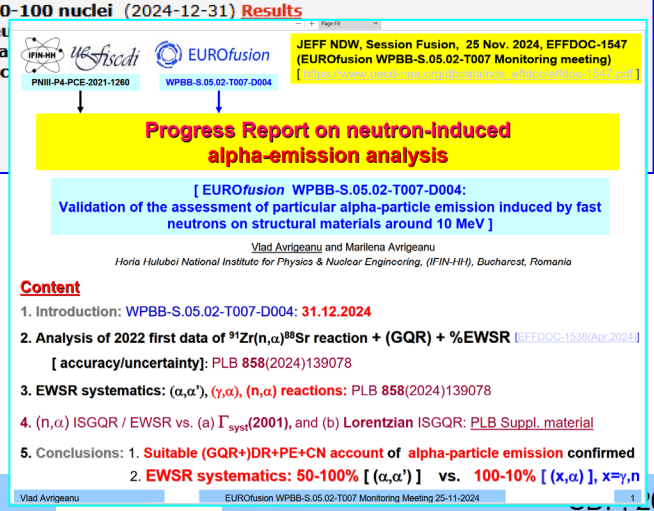
sections, and neutron-induced alpha
4. **Analysis of deuteron-induced reac**

RESULTS
PUBLISHED ARTICLES
RESEARCH TEAM



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Pozitie: Asistent Cercetare în cadrul proiectului EURATOM-RO/WPBB2

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- Cunoașterea tematicii și bibliografiei menționate în anunț

Abilități, calități și aptitudini: spirit de echipă, abilități de comunicare, lucru independent

Responsabilități principale:
- Asimilarea cunoștințelor necesare îndeplinirii atribuțiilor specifice activității în cadrul proiectului, si continuarii independente a tematicii proiectului dupa finalizarea acestuia
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3. M. Avrigeanu *et al*., J. Fusion Energy **43**, 15 (2024); Phys. Rev. C **107**, 034613 (2023)
4. M. Avrigeanu and V. Avrigeanu, Phys. Lett. B **858,** 139078 (2024)
5. A.J. Koning, *et al*., Eur. Phys. J. A **59**:131 (2023); *TALYS Manual*, http://www.talys.eu