האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

11/03/2025

PhD Position in Nuclear Physics

New measurements of beta-delayed neutron emission probabilities and mass spectrometry

Institution: Hebrew University, Jerusalem, Israel

Location: GSI Helmholtz center for heavy ion research, Darmstadt, Germany

Overview

A PhD position is available as part of an international research collaboration on **beta-delayed neutron emission probabilities (Pxn) and mass spectrometry**. The successful candidate will work within the **Super-FRS Experiment collaboration** and the **NUSTAR Collaboration at GSI/FAIR**, contributing to a high-impact experimental campaign at the FRS and Super-FRS facilities. The research focuses on measuring beta-delayed single- and multi-neutron emission probabilities of rare, short-lived neutron-rich nuclei, with implications for **nuclear astrophysics, nuclear structure, and nuclear reactions**.

This project will involve **state-of-the-art experimental techniques**, including a novel method that enables simultaneous measurement of Pxn values, nuclear half-lives, masses, and decay Q-values with the FRS and Super-FRS Ion Catcher (https://www-windows.gsi.de/frs-ion-catcher/).

Research Goals & Methodology

- Perform experiments at the **FRS and Super-FRS facility at GSI/FAIR**.
- Utilize advanced detection systems to study neutron-rich isotopes and their decay and ground state properties.
- Contribute to the **development and refinement of experimental techniques** for beta-delayed neutron emission.
- Analyze experimental data and compare results with theoretical nuclear models.
- Participate in international collaborations and present findings at conferences.

Moshe Friedman, PhD | ד"ר משה פרידמן
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Candidate Profile

We are looking for a motivated and talented student with:

- A **Master's degree** (or equivalent) in **Nuclear Physics, Experimental Physics, or a related field**.
- A strong interest in **nuclear astrophysics, nuclear structure, radioactive decay, and experimental techniques**.
- Experience with **data analysis, detector systems, and/or programming** (e.g., Python, C++, ROOT framework) is advantageous.
- Good communication skills and the ability to work in an international team.

What We Offer

- A **fully funded PhD position (monthly stipend of 8500 NIS, about 2150 €)** with access to cutting-edge experimental facilities.
- **Collaboration with leading international research teams** at FAIR within the NUSTAR Collaboration and the Super-FRS Experiment Collaboration.
- Opportunities to participate in **beamtime experiments, workshops, and scientific conferences**.
- A dynamic, interdisciplinary research environment in **one of the world's premier nuclear physics research facilities**.

Application & Contact

To apply, please send the following documents (in a single PDF file) to moshe.friedman@mail.huji.ac.il by 15.04.2025:

- A cover letter outlining your motivation and research interests.
- Your CV.
- Academic transcripts (Master's degree and relevant coursework).
- Contact details of **two references** who can provide recommendation letters.

For more information, feel free to contact **Dr. Moshe Friedman (**moshe.friedman@mail.huji.ac.il **)**.

Moshe Friedman, PhD | ד"ר משה פרידמן
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