

OPENING SOON:

PhD position in nuclear spectroscopy at TU Darmstadt and GSI Darmstadt

The Department of Physics of TU Darmstadt intends to screen the community for a PhD position in nuclear physics research within the DESPEC (DEcay SPECtroscopy) collaboration. The DESPEC experiment forms part of the NUSTAR (NUclear Structure, Astrophysics and Reactions) collaboration, which comprises one of the scientific pillars of the future FAIR facility currently under construction in Darmstadt, Germany. The DESPEC setup consists of a flexible suite of state-of-the-art detectors, where investigations of nuclear structure and astrophysics are enabled through the measurement of decay radiation emitted from exotic ions. At present, experiments are being carried out as part of FAIR Phase-0 at the existing GSI facility at the final focal plane of the FRagment Separator (FRS), where exotic isotopes are identified on an event-by-event basis and implanted into the core of the DESPEC array.

The successful candidate will be mostly located at the Nuclear Spectroscopy Department at GSI and play a leading role in the setup and execution of a DESPEC experiment in the context of FAIR Phase-0 with the goal of investigating exotic rare-earth nuclei, as well as in the subsequent in-depth data analysis and dissemination of scientific results. The new information obtained will provide an important insight on the evolution of collectivity and the nature of deformed shell gaps far from stability.

Tasks:

- setup and testing of state-of-the-art detector hardware and data acquisition (DAQ) systems
- conducting DESPEC experiments in FAIR Phase-0
- development of appropriate software for processing and analysis of experimental data
- dissemination of scientific results at international conferences/workshops
- publication of results in peer-reviewed journals
- support and contribute to the activities of the group

Requirements:

- master's (or equivalent) degree in physics
- keen interest in nuclear spectroscopy and experimental nuclear physics
- knowledge of radiation detectors and DAQ systems for nuclear physics applications
- experience with programming in C++ and python
- excellent communication skills in both written and spoken English
- knowledge and/or interest in machine-learning methods desirable

The position is expected to be available as soon as needed on an ordinary doctoral-student's salary basis (66% of a full-time scientist's position) and limited to three years.

The expressions of interest in the position including a curriculum vitae and a proof that you have master degree shall be sent (in one pdf-file) to Professor Dr. Norbert Pietralla (pietralla@ikp.tu-darmstadt.de) and Dr. Magda Gorska (m.gorska@gsi.de) before 31.03.2023. Based on the incoming expressions of interest, an ad-personam appointment procedure of the most competitive, suitable candidate will be started.