



Facility for Antiproton and Ion Research



Helmholtzzentrum für Schwerionenforschung GmbH

GSI Helmholtzzentrum für Schwerionenforschung in Darmstadt operates one of the leading particle accelerators for science. In the next few years, the new FAIR (**F**acility for **A**ntiproton and **I**on **R**esearch) one of the world's largest research projects, will be built in international cooperation. GSI and FAIR offer the opportunity to work together in this international environment with a team of employees committed to ensuring each day to conduct world-class science.

The department of '**Beam Diagnostics**' for accelerators is responsible for the development, installation and operation of instruments required for the control of the existing facility and the future FAIR accelerators.

We are looking for a

PhD candidate (m/f)
in Applied Physics or Material Science
Reference ID 65001-18.178

The position:

Within the framework of a joint project between German, Lithuanian and Russian research groups, novel ultrafast ceramic detectors for ionizing radiation based on zinc oxide nanocrystals will be developed. These devices will be used in the GSI-FAIR accelerator facility as part of standard beam diagnostics installed at various locations in the transfer lines between the accelerator and the experimental stations. Such detectors are also promising candidates for use in other research areas including medical imaging or industrial non-destructive testing.

In this PhD project, the scintillation properties of nanomaterials with different doping will be investigated with respect to their light emission yields, radiation hardness, and time response to relativistic ions ranging from protons to uranium. A variety of different samples will be produced by the Russian and Lithuanian collaborators. The most promising samples will be characterized and tested at GSI. Further goals are the description of the material response to ion impact by a suitable model and, if time allows, the construction of a large area detector. The research within this PhD project will lead to the implementation of the novel technology for standard diagnostics at GSI and other accelerator facilities.

The work will be carried out in the Beam Diagnostics group at the GSI Helmholtz Centre for Ion Research in Darmstadt in collaboration with the Department of Materials Science at the Technical University Darmstadt, Germany. During the time of the PhD work intense experiences can be gained in different fields of physics and technologies such as optics, electronics, methods in material science, and accelerator operation.

Requirements:

The candidate must have a Master degree in physics or material science. Programming skills and basic skills in handling experimental equipment are highly desirable. Ability to communicate freely in English is essential for the work with the international team of scientists.

The position is limited to a duration of 3 years. Salary is equivalent to that for public employees as specified in the collective agreement for public employees (TVöD Bund).

GSI supports the professional development of women and encourages their applications.

Preference will be given to handicapped applicants with equal qualifications.

For further information, please contact:



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Helmholtzzentrum für Schwerionenforschung GmbH

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Interested candidates should submit their application (pdf-format) that includes:

- Motivation letter
- CV with statement of the earliest possible starting date
- Names and contact details of at least two reference persons.

Referring to the announcement **reference ID** until by **December, 5th,2018** above to the following address or per E-Mail:

GSI Helmholtzzentrum für Schwerionenforschung GmbH
ABTEILUNG PERSONAL
PLANCKSTRASSE 1
64291 DARMSTADT

or by email to: bewerbung@gsi.de