

GSI Helmholtzzentrum für Schwerionenforschung in Darmstadt operates one of the leading particle accelerators for science. In the next few years, the new FAIR (Facility for Antiproton and Ion Research) 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 FRS/SFRS group is one of the major partners for nuclear and atomic physics experiments at GSI. In collaboration with the GSI Biophysics Department we aim at the development and use of light radioactive ion beams for radiation therapy in the context of the ERC Advanced Grant BARB (Biomedical Applications of Radioactive ion Beams): positron-emitting nuclei like $^{10,11}\text{C}$ and $^{14,15}\text{O}$ shall be used to exploit and validate the therapeutic potential of radioactive-ion-beam therapy in vivo by empowering simultaneous treatment and visualization using PET systems. For ground-breaking studies for production, separation and manipulation of light radio-isotopes and application in nuclear, atomic and bio-physics experiments, the FRS/SFRS group is looking for a

**Postdoctoral Researcher (d/f/m)
with a PhD in Nuclear Physics
Posting ID: 1230-20.52**

Main activities will be:

- The successful candidate will be joining a multidisciplinary team of experts in nuclear and atomic physics, ion optics, PET imaging and biophysics. The project will focus on the exploration and benchmarking of the key nuclear and atomic parameters required for the development of ion-beam therapy with positron emitters. Furthermore, these measurements shall demonstrate the feasibility of ion-beam therapy with positron emitters, which enable high quality in vivo beam visualization using positron-emission tomography (PET).
- The planned pilot experiments will be performed within the framework of the ERC Advanced Grant "Biomedical Applications of Radioactive Ion-beams" (BARB). The candidate is expected to provide and gain expertise in the FRS operation. One of the main responsibilities of the successful candidate will be the delivery of the positron-emitting beams of carbon and oxygen produced at FRS to the medical cave of GSI and the support of biological, biophysical, and PET imaging experiments.

Expected qualifications:

- Applicants should hold a Ph.D. degree in experimental nuclear physics. The position requires the capability of extensive independent work with both hardware and software. Prior experience with radioactive beam experiments will be considered as an important qualification. The work requires simulation work (e.g with MOCADI, LISE++, and ion-optical codes like MIRCO or GIOS) and programming knowledge in C/C++ and ROOT analysis framework.
- PhD in nuclear or particle physics
- Experience with production, separation, identification of exotic nuclear beams and work at a spectrometer or separator
- Practical experience and good knowledge in ROOT, C/C++ for experiment data analysis or simulation software
- Good knowledge and practical experience in nuclear physics particle detectors
- Good knowledge of written and spoken English

Desired qualifications:

- Ion optics calculations
- Nuclear physics data acquisition techniques
- Experience in PET imaging techniques

Salary is equivalent to that for public employees as specified in the collective agreement for public employees (TVöD Bund).

Women are especially encouraged to apply for the position.

Handicapped persons will be preferentially considered when equally qualified.

For further information please contact Prof. Dr. Christoph Scheidenberger - email: c.scheidenberger@gsi.de. Information about GSI and FAIR is available at www.gsi.de and www.fair-center.eu.

The term of appointment is for three years. Applicants are invited to submit a cover letter, a CV that includes contact information for three references who will be willing to provide letters of recommendation, and a publication list together with information of your earliest possible starting date and **Posting ID 1230-20.52** to the following address by **September, 6th, 2020** preferred via the online portal on our job site,

Via email to bewerbung@gsi.de

or by postal delivery to

**GSI Helmholtzzentrum für Schwerionenforschung GmbH
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PLANCKSTRASSE 1
64291 DARMSTADT**