

## Postdoctoral Positions in Nuclear Structure & Astrophysics

The **Johannes Gutenberg University Mainz** invites applications for two **Postdoctoral Researcher** positions in **Nuclear Structure and Astrophysics** within the newly funded **Collaborative Research Center (CRC) "Hadrons and Nuclei as Discovery Tools."** As part of a large research community, successful candidates will have access to cutting-edge local research infrastructure. The position includes funding for research and travel, with opportunities to participate in CRC activities such as lecture courses, workshops, retreats, and social events.

### Our Projects

Our group is focused on laboratory measurements of astrophysical impacts as neutron skin extraction for the determination of the Equation of State of neutron rich matter and the measurement of absolute cross-section of nuclear reactions. We have developed various detectors and methodologies for this purpose and actively collaborated with theory groups worldwide.

One project involves working on **high-impact precision experiments** using the P2 spectrometer at the MESA accelerator to extract the neutron skin of  $^{208}\text{Pb}$ , enhancing our understanding of neutron star matter. A second project focuses on using **high-intensity electron beam** to study time-reversed radiative-capture processes, providing critical insights into late burning stages of stars.

Candidates with experience in parity-violating electron scattering, or charged-particles and neutron detections, or photo-dissociation reactions will find this an exciting opportunity to apply their skills to groundbreaking research.

### Your Role

You will lead experimental design, simulation, and data analysis for these projects. The positions are initially for 2 years, with the possibility of extension, offering a **unique opportunity to drive high-impact research** and collaborate with global experts in the field.

### Your Qualifications

- PhD in Physics (with a focus on Nuclear or Particle Physics)
- Experience in experimental nuclear physics, detector development, or GEANT4-based simulations
- Experience with beam experiments or nuclear physics measurements is desirable

### Why Join Us?

- **State-of-the-art facilities:** Work with the world-class MESA accelerator and participate in groundbreaking experiments.
- **International Collaboration:** The CRC fosters strong international partnerships, providing opportunities for collaborative projects, research visits, and networking with institutions across the globe.
- **Professional Development:** Benefit from career mentoring, workshops, and opportunities to lead projects and develop key experimental skills within the CRC framework.
- **Flexible Work Environment:** JGU is committed to work-life balance and offers flexible working arrangement and a supportive, family-friendly atmosphere, ensuring work-life balance.

### Application Instructions

Submit your motivation letter, CV and a description of your research experience to **Prof. Dr. Concettina Sfienti** at [sfienti@uni-mainz.de](mailto:sfienti@uni-mainz.de). Please arrange for two signed letters of recommendation, on institutional letterhead, to be sent separately to the same address.

Applications will be reviewed on a rolling basis, with a final deadline of **November 10, 2024**.

