PROJECT 8

Cluster of Excellence PRISMA++ | Precision Physics, Fundamental Interactions and Structure of Matter

To strengthen its neutrino research program, the Johannes Gutenberg University Mainz invites applications for

1 postdoctoral position (EG13 TV-L)

to work on next-generation neutrino mass experiments with the Project 8 (https://www.project8.org/) and KATRIN (https://www.katrin.kit.edu/) collaborations. The position is initially term-limited to three years.

In order to reach a neutrino mass sensitivity beyond the inverted mass ordering any next-generation experiment requires an ensemble of spin-polarized and ultra-cold tritium atoms confined in a magnetic field gradient bottle as a high-brilliance source of decay electrons. To investigate the suitability of commercially available hydrogen crackers a test stand was commissioned at Johannes Gutenberg University Mainz to perform measurements regarding cracking efficiency, beam temperature and angular distribution. This setup is used to explore the operational limits of commercial atomic hydrogen sources and serves as the prototype test bed for a setup compatible with tritium operation. In the next step the prototype setup will be replicated at Germany's premier Tritium Laboratory Karlsruhe.

The postdoctoral scholar will coordinate the planning and implementation of the hardware and the measurement campaigns on both sites in close collaboration with the PhD students. The ideal candidate will have a strong and demonstrated experimental experience with the generation and cooling of high-flux atomic or molecular beams. In addition to the atomic hydrogen efforts, the local groups of Prof. Fertl and Prof. Böser have long standing experience in the fields of precision magnetometry and sensitivity studies of experimental designs. Embedded within the stimulating environment of the PRISMA^{++} Cluster of Excellence, outstanding working conditions are provided including e.g. access to a detector development laboratory or various soft-skill development opportunities.

Please send your application, consisting of a cover letter including a research statement (single line spacing, max. 12 pt, max. 2 pages), and your CV to project8jobs@lists.uni-mainz.de and arrange for three letters of reference to be sent to the same address. Review of applications will start on January 15th 2026 and will continue until the position is filled. Please do not hesitate to contact Prof. Dr. Martin Fertl (mfertl@uni-mainz.de) or Prof. Dr. Sebastian Böser (sboeser@uni-mainz.de) in case of any questions.