

Master Thesis (f/m) in Neutron Particle Physics

The Stefan Meyer Institute for Subatomic Physics (www.oeaw.ac.at) is currently looking for Master and project students for the NoMoS project. The NoMoS group (PoS(EPS-HEP2015)592) aims to search for traces of new physics in neutron beta decay with novel experimental techniques.

Precision measurements in neutron decay allow searching for physics beyond the Standard Model. An accuracy of 10^{-4} in the observables corresponds to energy scales of 1 – 100 TeV for new particles and interactions; far above the production threshold at the LHC. To achieve this accuracy, a new technique is developed: R×B spectroscopy. An R×B spectrometer measures the momentum of charged particles by their drift in a circular magnetic field (arXiv:1209.6595). This precision method will be applied to determine several correlations between decay products in neutron decay.

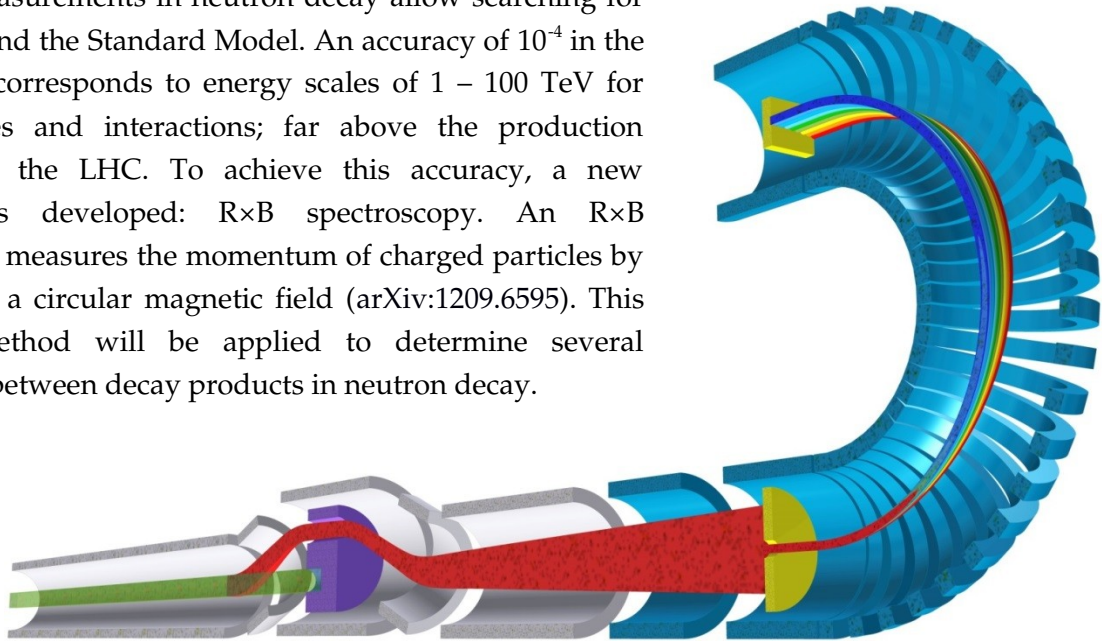


Figure 1: Schematic set-up of the R×B spectrometer installed at PERC, a new facility at the FRM II in Garching/Germany.

If you want to contribute to this current research project, then come and join us.

Activities:

You will work either on the design of the R×B magnet system or on the design of detector and calibration techniques for the R×B spectrometer. You will be integrated in an international collaboration, and may spend part of your time working abroad at the ILL in Grenoble/France.

Qualifications and skills:

Good knowledge of nuclear particle physics and charged particle detection, as well as programming skills are welcome. Good language skills (English and/or French) are helpful.

Planned start: Autumn 2017

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Applications from female scientists and candidates with disabilities are especially encouraged.