European Conference on Neutron Scattering 2023



Contribution ID: 155

Type: Poster

Silicon detector for neutron beta decay measurements with PERC

Monday 20 March 2023 16:00 (2 hours)

The PERC facility is currently under construction at the FRM II in Garching, Germany. It will serve as an intense and clean source of electrons and protons from neutron beta decay for precision studies. It aims to improve the measurements of the properties of weak interaction by one order of magnitude and to search for new physics via new effective couplings.

PERC's central component is a 12 m long superconducting magnet system that has been delivered. It hosts an 8 m long decay region in a uniform field. An additional high-field region selects the phase space of electrons and protons, which can reach the downstream detector to minimize systematic uncertainties.

The downstream detector and the two upstream backscattering detectors will initially be scintillation detectors with (silicon) photomultiplier readout. In a later upgrade, the downstream detector will be replaced by a pixelated silicon detector.

We present the current design status of this silicon detector prototype.

Author: LEBERT, Manuel (Technical University Munich)

Co-authors: MÄRKISCH, Bastian (Physik-Department, TUM); KLENKE, Jens (FRM II); BERNERT, Karina (TUM); LEHMANN, Kathrin; Mr URBAN, Korbinian (TUM); LAMPARTH, Max (TUM); Prof. MERTENS, Susanne (Physik Department, TUM)

Presenter: LEBERT, Manuel (Technical University Munich)

Session Classification: Poster Session MONDAY

Track Classification: Fundamental Science