

Alignment studies for the KATRIN experiment

The aim of the KARlsruhe TRItium Neutrino (KATRIN) experiment is the determination of the electron neutrino mass with a sensitivity of 0.2 eV (90% CL) by measuring an integrated energy spectrum of electrons from tritium β -decay.

The experiment uses a MAC-E filter where electrons that have sufficient kinetic energy pass an electrostatic barrier and arrive at the focal plane detector (FPD) where they are counted.

An essential characteristic of the experiment concerns the transmission properties of the spectrometer, which are affected by inhomogeneities in the electric potential and magnetic guiding fields. These can be modeled by simulations which require precise alignment of FPD, beamline and all magnets.

Data from previous measurement campaigns were used for validation of the alignment in the simulation.

The poster reports methods and results of these investigations.

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Authorship annotation

for the KATRIN collaboration

Session and Location

Monday Session, Poster Wall #8 (Robert-Schumann-Room)

Poster included in proceedings:

yes

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Track Classification: Poster (participating in poster prize competition)