

Status and commissioning of the KATRIN spectrometer and detector section

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The goal of the KARlsruhe TRItium Neutrino experiment (KATRIN) is to investigate the neutrino mass with a sensitivity of $0.2 \text{ eV}/c^2$ by a high-resolution and high-statistics measurement of the end-point region of the H-3 β -spectrum. For this task it uses an experimental setup made of two main parts, firstly a source and transport section including a windowless gaseous tritium source, a differential and a cryogenic pumping section. This system provides a clean current of H-3 β -electrons that are analyzed and detected in the second part, namely the spectrometer and detector section. The latter section consists of two electrostatic spectrometers based on the MAC-E filter technique and a multi-pixel silicon semiconductor detector.

At the experimental site at the Karlsruhe Institute of Technology (KIT), all major components have arrived in summer 2015 and the complete beam line is currently being assembled. Three commissioning phases have been pursued with the main spectrometer and the detector. The combined commissioning of the entire setup will start in summer 2016 and lead the way to first tritium measurements.

This talk gives an overview of the current status of the KATRIN experiment, focusing on the recent commissioning phases.

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