

Status and commissioning of the KATRIN experiment

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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 tritium beta-spectrum. The beta-electrons start in the windowless gaseous tritium source and go into a differential and a cryogenic pumping section. These components magnetically guide the beta-electrons, while reducing the tritium flow to a negligible level. The energy of the beta-electrons is then analyzed by two electrostatic spectrometers based on the MAC-E filter technique and detected by a multi-pixel silicon semiconductor detector.

At the experimental site at the Karlsruhe Institute of Technology (KIT), all major components have arrived by summer 2015 and the complete beam line has been assembled. The inauguration of the full beam line, the “FirstLight”, took place in October 2016 and was followed by a FirstLight+” commissioning campaign, that finished in December 2016.

This talk gives an overview of the current status of the KATRIN experiment, the recent “FirstLight+” campaign and the upcoming steps towards the first tritium measurements planned for the beginning of 2018.

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