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First measurements with the KATRIN main spectrometer

The KATRIN experiment is designed to probe the absolute neutrino mass scale from the kinematics of tritium β -decay. Therefore it will analyze the shape of the tritium β -spectrum in a narrow region close to the tritium endpoint. To reach the design sensitivity of 200 meV, a high energy resolution, high signal count rates and especially an ultra-low background rate of 0.01 cps are required.

In mid 2013 the combined spectrometer and detector section has been commissioned. The aim was to test all the hardware and slow control components and to demonstrate that the main spectrometer works as a MAC-E filter, while at the same time operating at a very low background level.

This poster will present first results from this measurement phase, focusing on the investigation of the background and transmission properties.

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