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## Background of the KATRIN experiment

The objective of the KATRIN experiment is the measurement of the effective electron neutrino mass with an unprecedented sensitivity of  $0.2 \text{ eV}/c^2$ . In the ultra-precise measurement of beta-electrons from tritium-decays, a non-zero neutrino mass would be indicated by a minute deviation of the beta-spectrum close to the endpoint at  $18.6 \text{ keV}$ . This is measured with a  $24 \text{ m}$  long electrostatic spectrometer with  $\text{eV}$ -resolution. Since the last  $\text{eV}$  of the spectrum contains only  $2 \cdot 10^{-13}$  of all beta-electrons, a low background rate is necessary. This poster describes the main background sources and the effectiveness of counter measures. The most prominent background sources are electrons produced by thermal ionization of highly excited Rydberg atoms and by magnetically trapped electrons from radioactive decays (e.g. radon) in the ultra-high vacuum of the spectrometer. Supported by the HGF and the German BMBF (05A17VK2).

### Mini-abstract

Description of background sources and mitigation in the KATRIN experiment

### Experiment/Collaboration

KATRIN Collaboration

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