

# First spectroscopic measurements of conversion electrons from the gaseous Kr-83m at the KATRIN experiment

## Authorship annotation

for the KATRIN collaboration

## Session and Location

Monday Session, Poster Wall #13 (Robert-Schumann-Room)

## Abstract content

The KATRIN experiment will perform a measurement of the effective electron antineutrino mass with an unprecedented sensitivity of  $0.2 \text{ eV}/c^2$  (90 % C.L.). An essential calibration and systematic tool in all tritium  $\beta$ -decay measurements is the metastable isotope  $^{83\text{m}}\text{Kr}$ . With its unique decay characteristics it provides monoenergetic conversion electrons of suitable energies and line widths. The short half-life of 1.83 h allows to introduce the isotope into the experimental apparatus without the risk of long-term contamination.

In this poster we present the first spectroscopic measurements of gaseous  $^{83\text{m}}\text{Kr}$  electrons performed with the full beamline of KATRIN. The results demonstrate the high-resolution performance of the KATRIN spectrometer and the ability to observe a spatially distributed isotropic source of electrons, both required for the tritium  $\beta$ -spectrum measurement.

## Poster included in proceedings:

yes

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**Session Classification :** Poster Session Monday

**Track Classification :** Poster (participating in poster prize competition)