

# Understanding the Systematic Contribution from the KATRIN Rear Wall

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The Karlsruhe Tritium Neutrino (KATRIN) Experiment directly measures the neutrino mass-scale with a target sensitivity of  $0.3 \text{ eV}/c^2$  by determining the shape change in the beta spectrum near the endpoint. The Rear Wall is used to maintain a homogenous starting potential distribution over the full magnetic flux tube volume in the gaseous tritium source. During operation, tritium is circulated from the gaseous source and through the beamline. In this process, small amounts of tritium adsorb on the Rear Wall. Because the Rear Wall tritium has different conditions such as temperature than those of the gaseous source tritium, the Rear Wall tritium has a different spectrum than that of the gaseous source tritium. This Rear Wall tritium spectrum is superimposed onto the spectrum from the gaseous source, and thus is treated as a background. Not accounting for this background tritium spectrum from the adsorbed tritium results in a potential bias in the extraction of the neutrino mass. In this poster, we will discuss this background tritium spectrum, the efforts being made to understand it, and the size of its systematic contribution to KATRIN's neutrino mass results.

## Poster prize

Yes

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