Contribution ID: **339** Type: **Parallel talk**

Probing the neutrino mass scale with the KATRIN experiment

Wednesday 30 August 2023 16:30 (15 minutes)

The KArlsruhe TRItium Neutrino experiment (KATRIN) is searching for the signature of the neutrino mass in the endpoint region of the tritium beta-decay spectrum. KATRIN combines a high-intensity gaseous molecular tritium source with a high-resolution spectroscopy using electrostatic filter with magnetic adiabatic collimation. This technique allowed KATRIN to reach with the first 5% of the data a sub-eV sensitvity to the neutrino mass and to set an upper limit of 0.8 eV/c^2 (90% CL).

In this talk an overview of the KATRIN experiment is presented. The analysis of the new dataset of KATRIN with 6 times increased statistics and further improvements in terms of signal-to-background ratio and systematics is discussed. The talk closes with an outlook on the future prospects of KATRIN.

Submitted on behalf of a Collaboration?

Yes

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Session Classification: Neutrino physics and astrophysics

Track Classification: Neutrino physics and astrophysics