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First glance at the latest science runs of the KATRIN neutrino mass experiment using the KaFit analysis package

Thursday 18 July 2024 20:40 (20 minutes)

Performing a precision measurement of the tritium β-decay spectrum, the Karlsruhe Tritium Neutrino (KATRIN) experiment aims at measuring the neutrino mass with a sensitivity better than 0.3 eV/c^2 (90% C.L.) after 1000 measurement days. The current world-leading upper limit of $m_\nu \leq 0.8$ eV/c^2 (90% C.L.) was determined from combined analysis of the first two measurement campaigns (6 million collected electrons until 2019) and a publication including the three subsequent measurement campaigns is in preparation (36 million collected electrons until 2021).

In this poster we present the most recent measurement phases which feature a significant increase of statistics to more than 125 million collected electrons in the region of interest. Following KATRIN's model blinding strategy, studies on simulated Asimov data using the KaFit/SSC model within the Kasper framework will be presented to provide an initial overview of this dataset.

Alternate track

I read the instructions above

Yes

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Track Classification: 02. Neutrino Physics