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

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Performing a precision measurement of the tritium β -decay spectrum, the Karlsruhe Tritium Neutrino (KA-TRIN) experiment aims at measuring the neutrino mass with a sensitivity better than 0.3 eV/c² (90% C.L.) after 1000 measurement days. The current world-leading upper limit of m_{<i>v</i>} < 0.8 eV/c² (90% C.L.) was determined from a 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.

Summary

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Session Classification: Poster session leading into social dinner buffet