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First KATRIN Bounds on Light Sterile Neutrino

The Karlsruhe TRitium Neutrino (KATRIN) experiment is designed to determine the effective mass of the electron-antineutrino with a target sensitivity of 200 meV/c² in a direct and model-independent way. KATRIN uses a strong windowless gaseous tritium source combined with a large, high-resolution spectrometer (MAC-E filter) to accurately analyze the electron energies from the source. In this poster, we present the limits of the 3+1 sterile-active neutrino mixture obtained from the first data of the KATRIN experiment. The implications for the reactor antineutrino anomaly and the gallium anomaly will be discussed. Finally, the prospects for the next KATRIN data will also be presented.

Mini-abstract

Limits of the 3+1 sterile-active neutrino mixture from the first KATRIN data.

Experiment/Collaboration

KATRIN

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