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The KATRIN experiment - the most precise scale for neutrinos

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The Karlsruhe Tritium (KATRIN) experiment is large-scale international project at KIT comprising about 120 scientists, engineers and students from 6 countries. Its scientific goal is to improve the sensitivity of current direct neutrino mass experiments by one order of magnitude down to neutrino masses of 0.2 eV, which is of key importance for astroparticle physics. This is achieved by combining a high-intensity molecular gaseous tritium source with a high-resolution electrostatic retarding spectrometer, which is read out by a segmented Si-Pin diode array. As only electrons close to the β -decay endpoint energy of 18.6 keV carry information on the neutrino mass, KATRIN scans the spectral shape of decay electrons in a narrow region of a few eV below the endpoint.

The talk gives an overview of the measuring principle of KATRIN and the status of its central components, which are in the final stages of commissioning, and closes with an outlook to the upcoming first light measurements.

Summary

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Session Classification: Local Talks