Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG
FAKULTÄT FÜR PHYSIK UND ASTRONOMIE
- DEKANAT -

PHYSIKALISCHES KOLLOQUIUM

Wintersemester 2025/2026

Das Kolloquium findet (soweit nicht anders angegeben) **jeweils montags um 14:15 Uhr im Röntgen-Hörsaal** des Physikalischen Instituts, Hubland Campus Süd, Universität Würzburg **und online via Zoom statt**.
Zugangsdaten siehe https://www.physik.uni-wuerzburg.de/aktuelles/veranstaltungen-aus-der-physik/physikalisches-kolloquium/

19.01.2026
Prof. Dr. Susanne Mertens
Max-Planck-Institut für Kernphysik, Heidelberg

Light, lighter, neutrinos: KATRIN's latest result and future perspectives

Abstract

The absolute neutrino mass scale remains one of the most pressing open questions in astroparticle physics. The most direct method to assess the absolute neutrino mass is through the kinematics of single beta decay, where the neutrino mass reveals itself as a tiny spectral distortion near the endpoint. The KATRIN experiment is designed to probe this effect by combining a high-intensity gaseous tritium source with a high-resolution spectrometer. Recently, KATRIN reported a new world-leading upper limit of $m < 0.45$ eV (90% CL), based on its first five measurement campaigns. In 2026, following the completion of its neutrino mass data-taking phase, KATRIN will upgrade its beamline with a novel detector system known as TRISTAN. This detector will enable measurements of the full tritium beta-decay spectrum, opening the door to searches for keV-scale sterile neutrinos. In this talk, I will present KATRIN's latest results and outline its future prospects.

Für die Dozentinnen bzw. Dozenten der Fakultät

Prof. Dr. Palffy-Buß, Prof. Dr. Klembt, Dr. Hammer, Hr. Baumbach, Fr. Schleicher