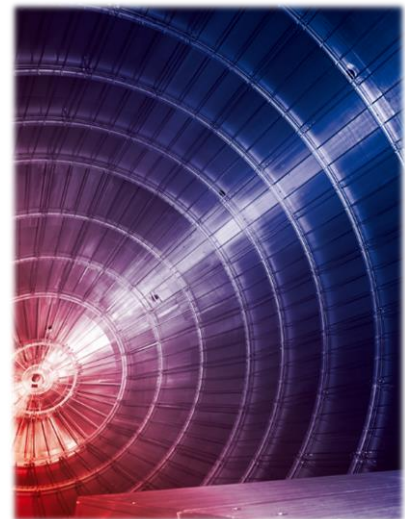


## Einladung zum Physikalischen Kolloquium

20.06.2025 **Alexey Lokhov, Karlsruher Institut für Technologie**  
**»Going to the limit: KATRIN neutrino mass results and beyond«**  
*Einführung: G. Drexlin*

Neutrinos are a key component of particle physics and cosmology. Their yet unknown absolute mass could shed light on the new mechanisms of mass generation beyond the Standard Model. Their impact on the evolution of the universe is especially interesting in light of recent puzzling results from galaxy surveys, like DES and DESI.

The KATRIN experiment provides the most sensitive direct laboratory measurement of the neutrino mass as of today. The sensitivity is achieved by combining a high luminosity tritium beta-decay source with a high-resolution spectroscopy of the beta-decay electrons. The talk will highlight the challenges and the solutions in optimizing the KATRIN measurement configurations for the background reduction, in pinning down key systematic effects, in inferring the new world-best direct upper limit on the neutrino mass and searching for physics beyond the Standard Model in the KATRIN data, in particular, the eV-scale sterile neutrinos and the general neutrino interactions.



Der Vortrag findet **am Freitag, den 20. Juni 2025 um 15:45 Uhr im Otto-Lehmann-Hörsaal**, Physik-Flachbau (Geb. 30.22), KIT-Campus Süd statt.