Beitrag ID: **3** Typ: **Talk Early Career**

Precision Mass Measurements Of Neutron-Rich Rare-Earth Isotopes And Fission Fragments

Montag, 18. August 2025 10:00 (30 Minuten)

Penning trap mass spectrometry provides the most precise technique for direct measurement of the mass of single nuclides. The determination with high-precision of this fundamental nuclear property, and the related nuclear binding energy, gives information on the evolution of nuclear structure away from stability. It also produces valuable inputs for the theoretical models describing the stellar nucleosynthesis processes such as the rapid neutron capture (r) process, responsible for the origin of more than half of the elements heavier than iron. These astrophysical calculations were shown to be very sensitive to masses, with the improved precision on their value directly impacting the model predictions. In the recent years at the JYFL Accelerator Laboratory, the use of the JYFLTRAP and the Phase-Imaging Ion Cyclotron-Resonance technique, combined with the fast and universal IGISOL production method, led to the determination of more than a 100 nuclear masses across the nuclide chart, including around 40 long-lived isomeric states. This presentation aims at giving an overview of the latest high-precision mass measurements of neutron-rich rare-earth isotopes around $A = 160$ and fission fragments in the ^{132}Sn region performed with the JYFLTRAP, and discussing their implications for the r process modeling.

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