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High-precision mass measurements of radioactive isotopes

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ISOLTRAP is a high-precision mass spectrometer at the radioactive ion-beam facility ISOLDE/CERN, which uses ion traps to measure the masses of short-lived radioactive isotopes for nuclear structure, astrophysics and weak-interaction studies. Currently, the ISOLTRAP team uses Time-of-Flight Ion-Cyclotron-Resonance, Multi-Reflection Time-of-Flight Mass Separation and Phase-Imaging Ion-Cyclotron-Resonance measurement techniques for the precision determination of the atomic masses of interest. Operation of penning traps and Multi-Reflection Time-Of-flight devices. General training in ion-beam optics and transport as well as charged-particle traps, ultra-high vacuum systems, high-precision timing and control systems, and various type of detectors (such as position-sensitive micro-channel plate and electron-multiplier). Paticipation in an upcoming on-line test run, which main goal is to determine the yield and release of neutron-rich titanium and scandium isotopes. Acquaintance with the operation and the wide range of physics experiments performed at the ISOLDE facility.

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Session Classification: Projects