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Precision nuclear physics experiments using AMO techniques¹

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Precision measurements of ground and excited state properties of rare nuclides, like nuclear masses and charge radii, have a wealth of applications among others in atomic-, nuclear-, astro-, neutrino- and particle physics. Recent technical developments in the manipulation and detection of radionuclides in high-precision Penning-trap mass spectrometry like the phase-imaging and Fourier-transform ion cyclotron resonance detection methods have boosted the field and allow e.g. for relative mass uncertainties at the level of $1\text{E-}11$. These technical advances as well as the opening of new fields of applications like the identification of low-lying isomeric states and the measurement of not only nuclear but also electron binding energies of exotic species will be presented.

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