Contribution ID: **5** Type: **not specified**

Vision and precision in radii estimations

Tuesday 28 January 2025 09:45 (45 minutes)

Finite nuclear size effects play an increasingly important role in precision atomic and nuclear physics. For example, they have been found to strongly affect the determination of the V_ud matrix element of the CKM matrix (arXiv:2309.16893)

Determining the absolute charge radius of some short-lived nucleus entails careful assembly of several pieces spanning different fields.
Measurements include optical isotope shifts, muonic atom x-ray energies, electron scattering cross-sections, while theoretical calculations span high-field QED and nuclear structure effects in muonic atoms and many-body calculation of isotope shift factors in atomic systems.

In this talk I will give an overview of the different pieces that go into a charge radius and discuss their current status and reliable uncertainty estimations. The talk will be biased towards medium mass numbers ($10 < A < 60$) relevant to the the study of mirror nuclei (arXiv:2409.08193).

Primary author: OHAYON, Ben (Technion IIT)

Presenter: OHAYON, Ben (Technion IIT)

Session Classification: Session 3