Abstract:
The radio isotope Thorium-229 is expected to present a remarkably low-energy excited (isomer) state of the nucleus which is expected around 8 eV. It might hence be possible to directly excite the atomic nucleus with UV (laser) radiation, creating a bridge between atomic and nuclear physics. The (expected) narrow line width of the transition and the intrinsic robustness of nuclear transitions to external fields makes it a promising candidate for a new frequency standard. In this presentation we will review significant progress [1] made in the last months on measuring the exact Th-229 isomer energy and lifetime.

[1] https://www.nature.com/articles/s41586-023-05894-z