



Contribution ID: 71

Type: Oral

Discovery of the proton emitter ^{116}La

Wednesday, 15 June 2022 09:50 (20 minutes)

The discovery of the new proton emitter ^{116}La , 23 neutrons away from stable ^{139}La , will be reported. ^{116}La nuclei were synthesised in the fusion-evaporation reactions at the University of Jyväskylä Accelerator Center and identified via their proton radioactivity using the MARA recoil mass spectrometer. Comparisons of the measured proton energy ($E = 718$ keV) and half-life ($T_{1/2} = 50 \pm 22$ ms) with values calculated using microscopic nuclear barrier penetration theory indicate that the proton is emitted with an orbital angular momentum $l=2$ and that its emission probability is enhanced relative to its closest, less exotic, odd-even lanthanum isotope (^{117}La) while the proton-emission Q -value is lower. We propose this unusual feature to be a signature for the presence of strong isovector neutron-proton pair correlations in this exotic, neutron deficient system. The observations of gamma decays from isomeric states in ^{116}La and ^{117}La will also be discussed.

Primary author: CEDERWALL, Bo (KTH Royal Institute of Technology)

Co-author: ZHANG, Wei et al. (KTH Royal Institute of Technology)

Presenter: CEDERWALL, Bo (KTH Royal Institute of Technology)

Session Classification: NS2022 Plenary

Track Classification: Oral Presentations