Contribution ID: **71** Type: **Oral**

Discovery of the proton emitter 116La

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

The discovery of the new proton emitter 116La, 23 neutrons away from stable 139La, will be reported. 116La 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 (T1/2 = 50 +-22ms) 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 (117La) 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 116La and 117La 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