



Contribution ID: 4

Type: **Invited (online)**

Total absorption gamma-ray spectroscopy measurements for isospin mirror asymmetry and nuclear structure

Wednesday 30 November 2022 11:00 (25 minutes)

In this contribution we will present recent experimental studies with the Lucrecia total absorption spectrometer at ISOLDE aimed at investigating the beta decays of nuclei of interest for nuclear structure. The Pandemonium effect [1] is known to hamper the determination of beta intensities with conventional HPGe approaches, while a high efficiency detector as Lucrecia [2] has proved the capabilities of the total absorption gamma-ray spectroscopy (TAGS) technique to determine the complete beta intensity distributions.

Isospin mirror asymmetry in mirror systems along the sd shell has been suggested to be an evidence of proton halo structure. An example is the ^{27}Na - ^{27}S pair, where the recently reported asymmetry could be due to the incompleteness of the decay data of ^{27}Na [3,4]. As will be shown in this contribution, the recent TAGS study of this decay at ISOLDE points to previously undetected beta intensity at high excitation energies.

Finally, we will also comment on other fresh measurements of interest for nuclear structure, in the framework of a very active program that has recently started with Lucrecia after some upgrades of the setup. Some examples include shape evolution studies of yttrium isotopes in the region close to $A=100$ [5] and nuclear structure studies in the $Z=20$ shell closure by means of the beta decay of neutron-rich potassium isotopes.

[1] J. Hardy et al., Phys. Lett. B 71, 307 (1977)

[2] B. Rubio et al., J. Phys. G: Nucl. Part. Phys. 44, 084004 (2017)

[3] Ł. Janiak et al., Phys. Rev. C 95, 034315 (2017)

[4] L. J. Sun et al., Phys. Rev. C 99, 064312 (2019)

[5] R. Rodriguez-Guzman, P. Sarriguren, and L. M. Robledo, Phys. Rev. C 83, 044307 (2011)

Primary author: GUADILLA GOMEZ, Victor (University of Warsaw (PL))

Presenter: GUADILLA GOMEZ, Victor (University of Warsaw (PL))

Session Classification: News from ISOLDE's Decay Spectrometers