Contribution ID: **26** Type: **not specified**

Spectroscopy of 100In with neutron knockout reactions

Thursday, 11 April 2019 10:15 (15 minutes)

The robustness of the proton and neutron shells for the doubly magic nucleus ^{100}Sn has been studied in β-decay experiments, resulting in the smallest log ft value for the decay of the ^{100}Sn ground state to the (1^+) state in ^{100}In. A decay spectroscopy experiment at the RIBF has improved the statistical uncertainties on the corresponding Gamow-Teller decay strength B_{GT} by a factor of ~3, due to a tenfold increase in statistics. At the same time, a sizable reduction in B_{GT} compared to the previous results was observed.

However, the extraction of the B_{GT} value requires an accurate knowledge of the level scheme of the daughter nucleus ^{100}In. In comparison with large-scale shell model calculations, multiple arrangements of γ rays in ^{100}In are possible due to unobserved weak γ-ray branches and a limited set of $\gamma\gamma$ coincidences. Furthermore, β-decay branches to higher-lying (1^+) states in ^{100}In have not been measured. The resulting systematic uncertainty on the B_{GT} value is now comparable to the statistical uncertainty.

In order to ascertain and expand on the level scheme of ^{100}In for tests of SM and improvements in the precision on the Gamow-Teller decay properties of ^{100}Sn, a neutron knockout experiment on ^{101,102}In is proposed. Doppler-corrected γ-ray energies separated by as little as 40 keV at $E_\gamma \sim 100$ keV should be resolved with the HPGe array.

Primary author: PARK, Joochun (Jason) (Lund University)

Presenter: PARK, Joochun (Jason) (Lund University)

Session Classification: Proposals