Contribution ID: **2** Type: **not specified**

Gamma spectroscopy near 78Ni

Thursday, 11 April 2019 11:00 (15 minutes)

We propose the $\gamma\gamma$ spectroscopy of ^{77,79}Cu, which is of paramount interest for tracing the evolution of proton single-particle levels near ^{78}Ni. Despite the limited resolution of the Dali-2 scintillators during the Seastar campaign, a level scheme could be constructed for ^{79}Cu. The $\pi f_{7/2}$ strength turned out to be fairly fragmented, resulting in a level population and a decay pattern that was richer than anticipated. Spin assignments were suggested only from comparison with MCSM calculations. A more precise determination of the level feedings would enable for exclusive cross sections to be obtained, with together with a refined level scheme would constrain the possible spin values. To this purpose the improved resolution of a germanium array of 1%, against 9% for Dali-2, is particularly significant.

Since Seastar the intensity of the primary ^{238}U beam has increased from 12 to 40 pnA, which compensates the lower γ efficiency of 9% instead of 27% (after addback). We would retain the Minos liquid hydrogen target with its TPC for identifying proton knock-out on an incoming zinc beam. We expect we would need the same amount of beam time as was used for Seastar, that is 5.5 days.

The study of particle-hole states in ^{80}Zn, such as the $g_{9/2}^{-1}d_{5/2}$ neutron multiplet that breaks the $N = 50$ core, would inform us on the size of the eponymous shell gap. They would be accessed through neutron knock-out from a ^{81}Zn beam, for which a different but nearby setting of the spectrometer should be chosen. The beam-time estimate for this measurement equals 3 days.

Primary authors: FRANCHOO, S (IPN Orsay); NIIKURA, M (University of Tokyo)

Presenter: FRANCHOO, S (IPN Orsay)

Session Classification: Proposals