ID de Contribution: **100** Type: **Oral Presentation**

Gamma-spectroscopy of neutron-rich ^{79}Cu through proton knock-out

mardi 10 mai 2016 14:15 (15 minutes)

One of the challenges nowadays in nuclear physics is to study nuclei as far as possible from stability. In these so-called exotic regions, the nuclear structure is strongly evolving. As a consequence, the "classical"magic numbers (8, 20, 28, 50, 82, 126) are not universal over the nuclear chart and unexpected behaviors may appear for extreme N/Z ratio.

This presentation focuses on the exotic region of ^{78}Ni, presumed to be doubly magic ($Z = 28$, $N = 50$), and more specifically on the $Z = 28$ shell gap to see whether it weakens when adding neutrons beyond $N = 40$. This is done through the study of copper isotopes (core of nickel + 1 proton). We focus here on neutron-rich ^{79}Cu, produced through proton knock-out at RIKEN in Japan.

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Classification de Session: Nuclear physics

Classification de thématique: Nuclear Physics