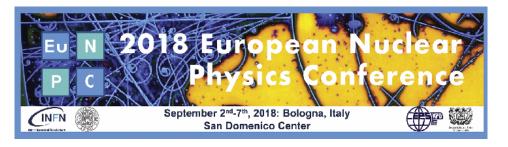
2018 European Nuclear Physics Conference



Contribution ID: 70 Type: not specified

In-beam γ -ray spectroscopy of nuclei in the 132Sn region performed at RIKEN

Tuesday, 4 September 2018 15:05 (20 minutes)

The nuclei around the doubly magic nucleus 132Sn (N=82 and Z=50) are of great interest both for nuclear structure investigations and nuclear astrophysics. Studying these systems, information about the evolution of nucleon-nucleon correlations, quadrupole collectivity and single-particle energies can be obtained. New experimental information allows to test different nuclear models and examine their validity in this region of the nuclear chart.

In April 2015, an experiment was performed at the Radioactive Isotope Beam Factory at RIKEN (Tokyo, Japan) to study neutron-rich nuclei in the 132Sn region using in-beam γ -ray spectroscopy. The exotic nuclei were produced via the projectile fission of a primary 238U beam at 345 MeV/u. The standard configuration of the BigRIPS and ZeroDegree spectrometers was used to select and identify the secondary beam [1]. After being identified in BigRIPS, the secondary beam impinged on C and Au targets to induce knockout reactions and Coulomb excitation. The γ rays emitted in the decay of excited states in several N=82-84, Z≥50 isotopes were detected using the DALI2 spectrometer, which consisted of 186 NaI(Tl) detectors.

In this contribution, I will discuss the new experimental information we obtained with respect to the γ decay of unbound states in 133Sn [2], the Coulomb excitation of 136Te [3] and other selected results.

- [1] T. Kubo et al., Prog. Theor. Exp. Phys. 2012, 3C003 (2012).
- [2] V. Vaquero, A. Jungclaus et al., Phys. Rev. Lett. 118, 202502 (2017).
- [3] V. Vaquero, A. Jungclaus et al., in preparation.

Selected session

Nuclear Structure and Dynamics

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Session Classification: Nuclear Structure and Dynamics (SALONE BOLOGNINI)