Contribution ID: **3** Type: **Contributed Oral/Poster**

^{13}Be studied by (p,2p) deep inelastic scattering reaction in complete kinematics

Monday, 11 July 2016 11:25 (15 minutes)

During the past three decades nuclear physics research has become more and more directed towards the understanding of the intricate properties of nuclei in the drip-line regions.

The R3B instrumentation constitutes a universal fixed-target set-up with the detection and identification of incoming beam as well as of all outgoing charged particles, neutrons, and gamma rays and thus making possible complete inverse-kinematics reaction-experiments using relativistic RIBs @ 300–1500 MeV/u. Experiments with the most exotic and short-lived nuclei produced in the reaction-target and analysed in the super-FRS before reaching the set-up allows for experiments exploring the isospin frontier at and beyond the drip-lines.

One of the future activities of the R3B experiment at FAIR will be to study the neutron drip-line by the use of Deep Inelastic Scattering Reactions. First experiments have already been performed using the ALADIN-LAND set-up at GSI.

In this contribution we report on the structure of the unbound nucleus ^{13}Be measured in complete kinematics using an incoming 14B beam at 490 MeV/u. Resonant states have been populated in ^{13}Be using the selective (p,2p) channel under quasifree scattering conditions for the first time. Further, prompt gamma rays emitted in the reaction in coincidence with the fragments of interest was detected and used to interpret the structure of ^{13}Be.

This work was supported by the Spanish Ministry of Economy and Competitively MINECO under project number FPA2012-32443.

Primary author: Prof. TENGBLAD, Olof (IEM - CSIC)

Co-authors: Dr NACHER, Enrique (IEM - CSIC); Dr RIBEIRO, Guillermo (IEM - CSIC)

Presenter: Prof. TENGBLAD, Olof (IEM - CSIC)

Track Classification: Shell evolution through direct reactions - Spectroscopy of nuclear levels and nuclear shapes through direct reactions