ID de Contribution: **15** Type: **Talk**

Transfer reactions induced with 56Ni: pairing and N=28 shell closure

mardi 30 mai 2017 17:45 (15 minutes)

The experimental study of the neutron-proton pairing is a challenging task that relies on the strength of the physical observables. Binding energies of N = Z nuclei and rotational properties of finite nuclei are some of the tools used up to now. Despite, their robustness to prove other physical phenomena, they are shown to be insufficient to prove the existence of T =0 pairing collectivity. On the other hand, two-neutron transfer reactions have been a powerful tool to understand neutron pairing correlations in nuclei, because the transfer is proportional to the number of pairs. In addition, since the number of neutron-proton pairs decreases very quickly as the neutron-proton imbalance grows, the transfer of a deuteron-like pair from even-even to odd-odd nuclei stands out the best tool to investigate neutron-proton correlations.

During spring 2014 the experiment aiming to this study took place at GANIL-Caen with the beam produced by fragmentation with the LISE spectrometer. We performed systematic measurements in inverse kinematics, with a beam of 56Ni. The experiment included a complicated set-up, by using a variety of detectors in a wide range of angles and for different reaction analysis. Part of our data provides information for the study of neutron-proton pairing as well as the study of the N=28 shell closure. The analysis of the (d,t) implements the differential cross-section for transfer reaction to ground state and first excited state of 55Ni. The transfer reaction (d,4He) is of high interest in this work, being particularly suitable for this study since only the ΔT = 0 transitions (transfer of a deuteron) is allowed and will shed light on neutron-proton pairing.

Auteur principal: Mlle GEORGIADOU, Anastasia (IPN)

Orateur: Mlle GEORGIADOU, Anastasia (IPN)

Classification de Session: Nuclear physics - experimental