CENTRE D'ETUDES NUCLÉAIRES DE BORDEAUX-GRADIGNAN

Vendredi 12 Septembre 2014

à

11H00

Un café sera servi à partir de 10h45

Marine VANDEBROUCK

GANIL (Caen)

Isoscalar giant resonances in exotic nuclei

The study of the Isoscalar Giant Monopole Resonance (ISGMR) and the Isoscalar Giant Quadrupole Resonance (ISGQR) in stable nuclei provided relevant information on both nuclear matter and nuclear structure in past decades. For instance the ISGMR centroid can be linked to the incompressibility modulus of the infinite nuclear matter. This modulus plays an important role when charaterizing the neutron star matter or the supernovae bounce. Values for exotic nuclei would help in constraining it. In unstable nuclei, only one measurement has been performed so far (^{56}Ni). In order to study the evolution of the ISGMR and the ISGQR along an isotopic chain, measurements in neutron-rich Ni are called for.

To reach this goal, a dedicated experiment was performed at GANIL. A ^{68}Ni beam at 50MeV/A and with an intensity of 10^4pps has been produced on LISE beamline. The inelastic scattering of deuteron and alpha particles on ^{68}Ni in inverse kinematics has been studied with a dedicated detector, the active target MAYA. It is the first attempt to measure the ISGMR in an unstable neutron-rich nucleus. Results concerning the inelastic scattering reaction in deuterons gas and in alpha gas will be shown, and the measurement of the ISGQR, ISGMR and indication for the first time of a soft mode, predicted by theory but never observed, will be discussed.

Salle des Séminaires du CENBG

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