CENTRE D'ETUDES NUCLÉAIRES DE BORDEAUX-GRADIGNAN

Vendredi 31 Janvier 2014

à

11H00

Un café sera servi à partir de 10h45

Guillaume BOUTOUX

CEA DAM DIF (Bruyères-le-Châtel),
actuellement au CELIA (Talence)

New puzzles in the nuclear fission emerging from the SOFIA experiment at GSI

SOFIA (Study On FIssion with Aladin) is an innovative experimental programme on nuclear fission carried out at GSI. In August 2012, we exploited relativistic secondary beams of neutron-deficient actinides and pre-actinides provided by the FRS (FRagment Separator) and studied their fission, induced by electromagnetic interaction, in inverse kinematics [1]. For the 75th anniversary of the discovery of nuclear fission, this experiment enables for the first time to determine the complete isotopic yields (nuclear charge and mass for each fragment) over a broad range of about 90 fissioning nuclei from ^{238}Np down to very exotic ^{183}Hg. Fission of about half of the studied nuclei is observed for the first time. Additional observables, such as total neutron multiplicities, kinetic energies and odd-even effects, are also inferred as function of the fission asymmetry.

In my talk, I would like to discuss how the systematic study of fission yields can be useful for probing nuclear shell effects in the fission fragments region. New insights, but also new puzzles, emerging from the SOFIA experiment, will be presented.

Salle des Séminaires du CENBG

Le Haut Vigneau - BP 120 - F-33175 Gradignan Cedex