ID de Contribution: **61** Type: **Talk**

Gamma-ray cascade study in Kr and Ba fission fragments with the EXILL experiment

mardi 30 mai 2017 16:45 (15 minutes)

The poor accuracy of microscopic models in the prediction of fission observables constrains nuclear industry to rely on semi-empirical models, which in turns need systematic and accurate experimental data on a significant number of observables. In the last decade, large efforts were made in the fission community to improve models of the fission process and of the de-excitation of fission fragments. This is performed through reliable Monte Carlo simulations that take into account prompt neutrons and gamma-ray emission. An ultimate aim of such a simulation is to predict e.g. gamma-heating effect in nuclear reactor. The FIFRELIN code developed by CEA Cadarache is able to estimate the intensities of gamma-ray transitions in all the fission fragments.

In the EXILL experiment conducted in 2012 and 2013 at ILL, a target made of 235U (and also 241Pu, which was not investigated in this work) was surrounded by an array of high-resolution, germanium gamma-ray detectors and irradiated by an intense cold neutrons beam. We have extracted the intensities of the main discrete gamma-ray transitions in a set of fission fragments, using the triple gamma-ray coincidence technique, and we have compared our results to FIFRELIN outputs. The result of our study on the gamma-ray cascades in Kr and Ba fragment pairs will be presented.

Auteur principal: M. RAPALA, Michal (CEA Saclay/IRFU/DPhN/LERN)

Co-auteurs: LETOURNEAU, Alain (CEA, DRF, IRFU, Université Paris-Saclay, F-91191 Gif-sur-Yvette, France); BLANC, Aurélien (Institut Laue Langevin (ILL), F-38042 Grenoble Cedex 9, France); SIMPSON, Gary (LPSC, Université Joseph Fourier Grenoble 1, CNRS/IN2P3, F-38026 Grenoble Cedex, France); DE FRANCE, Gilles (Grand Accélérateur National d'Ions Lourds (GANIL), F-14076 Caen Cedex 5, France); JENTSCHEL, Michael (Institut Laue Langevin (ILL), F-38042 Grenoble Cedex 9, France); LITAIZE, Olivier (CEA, DEN, DER, Cadarache, F-13108 Saint-Paul-lez--Durance, France); SEROT, Olivier (CEA, DEN, DER, Cadarache, F-13108 Saint-Paul-lez-Durance, France); MUTTI, Paolo (Institut Laue Langevin (ILL), F-38042 Grenoble Cedex 9, France); LEONI, Silvia (INFN, 35020 Legarno, Italy); MATERNA, Thomas (CEA, DRF, IRFU, Université Paris-Saclay, F-91191 Gif-sur-Yvette, France); SOLDNER, Torsten (Institut Laue Langevin (ILL), F-38042 Grenoble Cedex 9, France); KOESTER, Ulli (Institut Laue Langevin (ILL), F-38042 Grenoble Cedex 9, France); URBAN, Waldemar (Faculty of Physics, University of Warsaw, PL-02-093 Warszawa, Poland)

Orateur: M. RAPALA, Michal (CEA Saclay/IRFU/DPhN/LERN)

Classification de Session: Nuclear physics - experimental