Contribution ID: **11**   Type: **Short contribution**

Isomeric fission yield measurements at IGISOL

Tuesday, 11 November 2014 14:20 (20 minutes)

Fission yield data is a key parameter in the design and operation of nuclear power plants. Fission yield distributions depend not only on the fissioning nuclei, but also on the energy and type of the incoming particles inducing fission.

More accurate data could improve both safety and fuel economy of present generation reactors as well as that of future nuclear systems. Improved knowledge of isomeric fission yields are also important for simulations of the astrophysical r-process.

The Accurate Fission data FOr Nuclear Safety (AlFONS) project aims at high precision measurements of fission yields, using the renewed Ion Guide Isotope Separator Online (IGISOL) facility in combination with a new high-current light-ion cyclotron at the University of Jyväskylä. Fission can be induced in an actinide target either directly by the 30 MeV proton beam or by a neutron field from a Beryllium converter target. Through a series of elements, culminating with the JYFLTRAP Penning trap, the fission fragments can be mass separated at a resolving power of a few hundred thousand. The mass resolution is enough to resolve single isotopes as well as some isomeric states.

We will here present the experimental setup and the IGISOL technique as well as some preliminary results from measurements performed in 2013 and 2014 of isomeric yield ratios of proton induced fission of Uranium and Thorium.

Primary author: Mr RAKOPOULOS, Vasilis (Uppsala University)

Co-authors: Dr AL-ADILI, Ali (Uppsala University); Mr MATTERA, Andrea (Uppsala University); Dr SOLDERS, Andreas (Uppsala University); Prof. JOKINEN, Ari (University of Jyväskylä); Mr GORELOV, Dmitry (University of Jyväskylä); Dr PENTTILÄ, Heikki (University of Jyväskylä); Dr LANTZ, Mattias (Uppsala University); Dr RINTA-ANTILA, Sami (University of Jyväskylä); Prof. POMP, Stephan (Uppsala University); ERONEN, Tommi (University of Jyväskylä); Dr KOLHINEN, Veli (University of Jyväskylä)

Presenter: Mr RAKOPOULOS, Vasilis (Uppsala University)

Session Classification: SFS-KF

Track Classification: SFS-KF