NUSTAR Seminar

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Wednesday, March 06, 2019 at 14:30 p.m.

Theory Seminar Room SB3 3.170a

Planckstraße 1, 64291 Darmstadt

“Isomeric yield ratio measurements at IGISOL/JYFLTRAP for assessing angular momenta of fission fragments”

Nuclear fission is a slow and complex process. While the basic principles were understood early on, several aspects of the fission process remain puzzling. Achieving a better understanding of fission is important due to its role as a means for sustainable electricity production, and the possibility to use fission as a “complete nuclear physics lab”. Among the open questions is the quest for the mechanism yielding fission fragments with large angular momenta even in spontaneous fission of nuclei with spin zero.

In several campaigns at IGISOL/JYFLTRAP, and in a collaboration between Uppsala and Jyväskylä, we measured the isomeric yield ratios of fission products from proton and neutron-induced fission. Using nuclear model codes we derive information about the root-mean-square angular momentum of the primary fission fragments.

In this talk, I will first give a brief overview on the experimental activities of the Uppsala group. I will then focus on the activities at IGISOL, in particular the efforts towards development of a fast neutron field, and the isomeric yield ratio measurements. I will discuss the recent study performed on odd-A isotopes of Cd and In from ^{nat}U(p,f), the method to derive information about the fragment angular moment and give an outlook on plans and developments.

Coordinator: Timo Dickel
Secretary: Luise Dörsching-Steitz
https://indico.gsi.de/event/8573/