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Catching the spin - Isomeric yield ratio measurements for fission studies

Fission is a complex nuclear reaction process with aspects that remain puzzling despite extensive research. One aspect is the fact that the fragments emerge with significant amount of spin, exceeding the spin of the fissioning systems by several units.

Using nuclear mass measurement techniques one can derive the relative population of different spin states of fission product isomers. This information can then be used to extrapolate back to the angular momentum of the fission fragment right after scission has occurred. Recent advances in the mass resolving power in nuclear mass measurement open the way for more systematic studies of fission fragment spin and can be expected to shed light on the mystery of spin generation in fission.

In this talk I will present the problem, discuss recent measurement results from JYFLTRAP at IGISOL in Finland and present a program for planned new measurements at both JYFLTRAP and TRIGATRAP in Mainz.