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Fission studies with the nu-Ball2 array

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A series of recent experiments to perform high resolution gamma ray spectroscopy of nuclear fission have been carried out with the ν -Ball2 spectrometer [1]. Nu-Ball2 is a state-of-the-art hybrid gamma-ray spectrometer that was developed and constructed at the ALTO facility of IJC Lab in Orsay. Several open questions are currently being addressed such as the evolution of evolution of fragment yield distributions in the sub-actinide region [2], the emission of high energy gamma rays in nuclear fission with potential population of collective excitations (PDR, GDR, etc.) in the emerging fragments [3]. The experiments have also explored other outstanding questions, such as the angular momentum carried away by neutron emission [4] and potential angular correlations between the spins of fission fragment partners [5]. Finally, the potential energy landscape before fission occurs can also be studied via gamma spectroscopy of fission shape isomers [6][7]. An overview of these new studies during the ν -Ball2 experimental campaign will be given and selected results will be presented along with future perspectives.

References

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