

# India-JINR workshop on elementary particle and nuclear physics, and condensed matter research

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## Probing Dynamics of Fusion-Fission Process in heavy to very heavy nuclei

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This talk will primarily draw from the measurements carried out at IUAC, New Delhi using the HYRA recoil separator coupled with the TIFR 4 $\pi$  Sum-Spin spectrometer. We will provide a brief introduction to the subject of heavy-ion induced fusion followed by fission process and its wider ramifications in low and medium energy nuclear physics. We will summarise what we have learnt so far and what are the unresolved mysteries. Example to support the current understanding of the subject will be primarily from our very recent measurements of angular momentum gated Evaporation Residues from the heavy 186Pt and very heavy 240Cf nuclei. Detailed analysis using Statistical Model analysis and Dynamical approach will also be presented. This is the first measurements of spin gated evaporation residues from the 186Pt compound nucleus. This is also the very first attempt to measure the evaporation residues from the very heavy 240Cf nucleus. The theoretical DNS calculation is the result of a close collaboration with the group from Bogoliubov Laboratory of Theoretical Physics, JINR, Dubna.

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