

Symmetries and Shapes in Heavy Nuclei via Inelastic and Transfer Reactions

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The talk will primarily focus on excitations in heavy nuclei in the $A \sim 180$ and $A \sim 250$ regions that lie on the neutron-rich edge of stability. Current experimental techniques to excite nuclei in this region involve inelastic and transfer reactions with heavy beams, due to a lack of stable beam-target combinations for traditional fusion reactions. K-isomers and the approximate symmetries and orbitals they probe will be a common theme that will include nuclei in both $A \sim 180$ and $A \sim 250$ regions. The physics discussion in the $A \sim 180$ region will also focus on the dynamic competition between prolate and oblate shapes undergoing collective rotation at high spins, and how the interplay with individual nucleonic excitations affects that competition.