

NUCLEAR SPECTROSCOPY WITH FAST RARE-ISOTOPE BEAMS

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Monday, October 1 ❖ 4:00 P.M. ❖ 124 NSH

The often surprising properties of neutron-rich nuclei have prompted extensive experimental and theoretical studies aimed at identifying the driving forces behind the dramatic changes encountered in the exotic regime. In-beam nuclear spectroscopy with fast beams and thick reaction targets—where gamma-ray spectroscopy is used to tag the final state—provides information on the single-particle structure as well as on collective degrees of freedom in nuclei that are available for experiments at beam rates of only a few ions/s. This presentation will show how in-beam experiments measure complementary observables that advance our understanding. The interplay of experimental results and theory will be emphasized at the intersection of nuclear structure and reactions in the joined quest of unraveling the driving forces of shell evolution.