

RIA, a new class of accelerators

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The physics opportunities made possible with beams of rare isotope are among the richest available in nuclear science. The opportunities range from basic questions of nuclear structure and stability, to nuclear astrophysics and the study of fundamental interactions. The rare isotope accelerator, RIA, is an innovative concept that will define the state-of-the-art for all such facilities. The RIA project includes the best features of both in-flight and ISOL techniques to provide both fast and reaccelerated beams. The RIA facility will combine target-fragment production in next generation high-power ISOL targets with projectile-fragment production in a high energy separator/gas-catcher system to provide an extensive range of stopped ions for reacceleration. In addition, a second high energy separator will provide an even larger range of ions for high energy experiments. A brief overview of the RIA accelerator and production techniques will be given along with perspectives of the physics opportunities at low and high energies.