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**Radioactive Ion Beams for Stewardship Science** ANDREAS KRONENBERG, H.K. CARTER, E.H. SPEJEWSKI, Oak Ridge Associated Universities, OAK RIDGE ASSOCIATED UNIVERSITIES TEAM — Measurements of particular reaction sequences that influence the cumulative fission yield of specific fission products of interest for stewardship science as well as for nuclear reactions on radiochemical detectors used in testing nuclear devices are often not accessible with radioactive targets because of short half-lives, high specific activities or availability of sufficient target material. Therefore, a possible surrogate reaction for  $(n,\gamma)$  is the neutron transfer in  $(d,p)$  or  $(d,p\gamma)$  reactions, which can be measured with ion beams of short-lived radioactive species in inverse kinematics. The Center of Excellence for Radioactive Ion Beam Studies for Stewardship Science is developing experimental techniques for measuring  $(d,p)$  reactions. Therefore, a strong component of our center is the development of accelerated radioactive ion beams such as  $^{48}\text{V}$ ,  $^{73,74}\text{As}$ ,  $^{92,94,95}\text{Sr}$ ,  $^{82}\text{Ge}$ ,  $^{132,134}\text{Sn}$ , Zr, Mo, Tc, and others. Some of these beams had not been available before, because the elements are refractory, or some beams require higher beam intensity or purity. Beam development techniques include different actinide targets, e.g.  $\text{ThO}_2$ , molecular sideband formation, e.g. for Sr and possibly charge-exchange processes. This talk will consider specific beams of interest for our center. This research was sponsored by the NNSA under Stewardship Science Academic Alliance program through DOE Cooperative Agreement # DE-FC03-3NA00143.

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