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ABSTRACT

Neutron Induced charged particle reaction studies on both stable and radioactive nuclei at LANSCE

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The need for improved nuclear data on neutron-induced charged-particle (n,z) reactions, which are ubiquitous in nature, have been identified for a wide range of applications such as in nucleosynthesis network calculations for astrophysics, characterizing damage to structural materials due to gas production, and in device-performance simulations. To address the specific nuclear data needs, the Low-Energy (n,z), LENZ, instrument is designed to measure double-differential cross sections of (n,p) and (n,a) reactions using the fast neutrons, with a broad energy spectrum, available at the Weapons Neutron Research facility at the Los

Alamos Neutron Science Center (LANSCE). Results from studies of (n,z) reactions on both stable (A = 58, 60) and radioactive (A = 56, 59) nickel isotopes will be presented. On-going efforts to improve measurements with radioactive targets will also be discussed.