

Neutron induced charged particle emitting reactions on radioactive isotopes at LANSCE

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o further enhance our understanding of nuclear reactions on radioactive isotopes relevant for applications such as nuclear astrophysics and national missions, we need to extend our capability of accessing radionuclides from today's reach. The Isotope Production Facility at the Los Alamos Neutron Science Center (LANSCE) provides short-lived isotopes such as ⁵⁶Ni with a half life of 6 days, which was used for directly measuring (n,p) and (n, α) reactions with the hotLENZ (radioactive Low Energy NZ) instrument at LANSCE. The summary of astrophysical impacts on the ⁵⁶Ni reaction study will be discussed as potential constrains of nuclear physics input in network calculations to improve explanations of the heavy element production puzzles. Based on the current limitations on directly accessing radionuclides and measuring nuclear reactions with them, I will present the feasibility, the future optimizations, and additional capabilities that will enhance this effort on improving our fidelity on direct measurements on neutron reactions on radionuclides.