

Abstract Submitted  
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**Gas-production reaction studies:  $^{54}\text{Fe}(\text{N},\text{Z})$  measurements with LENZ at LANSCE**<sup>1</sup> ANASTASIA GEORGIADOU, HYE YOUNG LEE, SEAN KUVIN, Physics Division, Los Alamos National Laboratory, Los Alamos, NM, 87545, USA, LUKAS ZAVORKA, Physics Division, Los Alamos National Laboratory, Los Alamos, NM, 87545, USA, HYEONG IL KIM, Korea Atomic Energy Research Institute, Daejeon, South Korea — The development of the LENZ (Low Energy NZ-neutron induced charged particle detection) set-up at LANSCE gives the capability of studying neutron induced reactions in detail. The wide neutron spectrum of LANSCE, in addition to the large solid angle coverage of LENZ, provides a unique tool for the disentanglement of the excited states. In addition, it improves the information we have up to now, giving the angular distribution of the different channels as well as information useful on statistical models such as Hauser-Feshbach used for many neutron induced reactions. Fe is one of the mostly used structural materials. Its importance lies not only in applications but also in nuclear astrophysics. The total and differential cross sections, as well as angular distributions of the  $^{54}\text{Fe}(\text{n},\text{p})$  reaction will be presented and compared with recent evaluations. This benchmark study will aid the ongoing analysis and evaluation of multiple reaction measurements in the LENZ project, including on radioactive isotopes.

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