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Neutron-Induced Charged Particle Studies at LANSCE HYE YOUNG LEE, ROBERT C. HAIGHT, Los Alamos Natl Lab — Direct measurements on neutron-induced charged particle reactions are of interest for nuclear astrophysics and applied nuclear energy. LANSCE (Los Alamos Neutron Science Center) produces neutrons in energy of thermal to several hundreds MeV. There has been an effort at LANSCE to upgrade neutron-induced charged particle detection technique, which follows on (n,z) measurements made previously here and will have improved capabilities including larger solid angles, higher efficiency, and better signal to background ratios. For studying cross sections of low-energy neutron induced alpha reactions, Frisch-gridded ionization chamber is designed with segmented anodes for improving signal-to-noise ratio near reaction thresholds. Since double-differential cross sections on (n,p) and (n,a) reactions up to tens of MeV provide important information on deducing nuclear level density, the ionization chamber will be coupled with silicon strip detectors (DSSD) in order to stop energetic charged particles. In this paper, we will present the status of this development including the progress on detector design, calibrations and Monte Carlo simulations. This work is funded by the US Department of Energy - Los Alamos National Security, LLC under contract DE-AC52-06NA25396.

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