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Further Development of ^{41}Ca for Production Cross Section Measurements[1] AUSTIN NELSON, TYLER ANDERSON, LAUREN CALLAHAN, ADAM CLARK, MICHAEL SKULSKI, PHILIPPE COLLON, University of Notre Dame — Short Lived Radionuclides (SLRs), or isotopes with half-lives that are short compared to the age of the Solar System, are integral to understanding the formation of the Solar System. Evidence from SLR concentrations in meteorites can help determine Solar System production sources, but there are still debates on specific production mechanisms and their underlying processes. The X-wind model attempts to explain observed SLR abundances through the use of protosolar cosmic-ray irradiation and relies on theoretical calculations for a wide range of nuclear reactions needed for isotopic production models. ^{41}Ca ($t_{1/2}$ = 9.94 x 10^4 yrs) is an important SLR and it's production in the early Solar System can help determine the viability of models of early stellar processes. Information on the production of ^{41}Ca is limited and several production cross sections have minimal or no experimental data. ^{41}Ca detection capabilities have recently been developed at the University of Notre Dame's Nuclear Science Laboratory (NSL) utilizing the technique of accelerator mass spectrometry (AMS). Recent upgrades to the AMS beamline have been made, so new sensitivity limits will be discussed along with first ^{41}Ca production activations for future cross-section measurements.

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