Abstract Submitted for the DNP06 Meeting of The American Physical Society

Using the Neutron-Deuteron Breakup Reaction as a Probe for the Three-Nucleon Force<sup>1</sup> KIRBY RUNYON, STEVEN WALLACE<sup>2</sup>, ALEXAN-DER LIPNICKI, MARK YULY<sup>3</sup>, Houghton College, ND BREAKUP COLLABO-RATION — An experiment is being performed at the Los Alamos Neutron Science Center to probe for a three-nucleon component (3NF) of the strong force. Historically, the strong force has been modeled as a two-nucleon interaction, but experimental evidence suggests interactions between nucleon triplets may contribute to the strong force. Neutrons with energies up to 800 MeV will strike a liquid deuterium target. Deuterium usage allows detection of the 3NF using the smallest possible nuclei since interactions will involve three nucleons. A magnetic spectrometer will measure scattered proton momenta and large plastic scintillators will detect neutrons. Neutron-proton elastic scattering will also be detected at conjugate angles for calibration purposes. Data collection is anticipated in October 2006.

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