

Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Measurement of the Neutron-Proton and Neutron-Carbon Total Cross Section from 150 to 800 keV M. KOVASH, Z. MILLER, K. SHONIYOZOV, H. YANG, Dept. of Physics, Univ. of Kentucky, B. DAUB¹, V. HENZL², J. MATTHEWS, Laboratory for Nuclear Science and Dept. of Physics, MIT — There have been very few measurements of the total cross section for np scattering below 500 keV. In order to differentiate among NN potential models, improved cross section data between 20 and 600 keV are required. We measured the np and nC total cross sections in this energy region by transmission; a collimated neutron beam was passed through CH_2 and C samples and transmitted neutrons were detected with a BC501 liquid scintillator. Cross sections were obtained between 150 and 800 keV by taking the ratios of normalized neutron yields with the samples in the beam and with no sample in the beam. The parameters resulting from fitting effective range theory to the data for np scattering are in good agreement with parameters determined from previous fits.

¹Current Address: Univ. of California, Berkeley

²Current Address: Los Alamos National Laboratory

Michael Kovash
Dept. of Physics, Univ. of Kentucky

Date submitted: 29 Jun 2012

Electronic form version 1.4