Abstract Submitted for the HAW05 Meeting of The American Physical Society

Measurement of the  ${}^{1}S_{0}$  Neutron-Neutron Scattering Length in nd Breakup Using a Coincidence Geometry at 19 MeV<sup>1</sup> A.S. CROW-ELL, J. DENG, J.H. ESTERLINE, C.R. HOWELL, M.R. KISER, R.A. MACRI, S. TAJIMA, W. TORNOW, Duke University and TUNL, B.J. CROWE III, North Carolina Central University, R.S. PEDRONI, North Carolina A&T State University, W. VON WITSCH, University of Bonn, H. WITALA, Jagellonian University — Measurements of the  ${}^{1}S_{0}$  neutron-neutron scattering length,  $a_{nn}$ , in neutron-deuteron (nd) breakup were made at Triangle Universities Nuclear Laboratory (TUNL) at an incident neutron energy of 19.0 MeV. A coincidence geometry was utilized so that the momenta of the two neutrons in the final-state-interaction pair were measured along with the energy of the proton. A second detector pair was used to measure the well-established neutron-proton scattering length,  $a_{np}$ , as a check of our techniques. The scattering lengths were extracted from the experimental cross sections by comparison to rigorous three-nucleon calculations using the CD Bonn nucleonnucleon potential for various values of  $a_{np}$  and  $a_{nn}$ . Experimental details and our preliminary results will be presented.

 $^1\mathrm{This}$  work was supported in part by USDOE Grant No. DE-FG02-97-ER41033

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Date submitted: 26 May 2005

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