## Abstract Submitted for the HAW05 Meeting of The American Physical Society

Neutron-Helium-3 Analyzing Power at 3.14, 4.05, and 5.54 MeV<sup>1</sup> J.H. ESTERLINE, A.S. CROWELL, C.R. HOWELL, A. HUTCHESON, R.A. MACRI, S. TAJIMA, W. TORNOW, Duke University & TUNL, B.J. CROWE, N.C. Central University & TUNL, R.S. PEDRONI, N.C. A&T State University & TUNL, G.J. WEISEL, Penn State Altoona & TUNL — In the interest of resolving differences between calculations and measurements in three-nucleon analyzing powers, the four-nucleon system is being examined due to its sensitivity to the relevant nucleon-nucleon phase shifts. Consequently, the analyzing power for polarized neutron-helion scattering has been measured at Triangle Universities Nuclear Laboratory (TUNL) over a wide angular distribution for incident neutron energies of 3.14, 4.05, and 5.54 MeV. These data were obtained with neutrons generated by the polarization-transfer reactions  $T(p,n)^3He$  for 3.14 MeV neutron energy and  $D(d,n)^3$ He for the higher energies, with neutron polarizations in the range of 0.3 to 0.5, increasing with neutron energy. Statistical uncertainties in the analyzing power were found in preliminary analysis to be less than 0.03 at the cross section minima, corresponding to values of analyzing powers in excess of 0.6. The data are compared to rigorous calculations based on the Yakubovsky equations, with which they are in marked disagreement, and existing proton-triton data corrected for the Coulomb barrier.

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