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Model-Independent Determination of the ϵ_1 Phase Shift Parameter with Low Energy $\vec{n}$-$\vec{p}$ Scattering[1] B. W. RAICHLE, Western Carolina U, C. R. GOULD, D. G. HAASE, M. L. SEELY, J. R. WALSTON, NC State U and TUNL, W. TORNOW, W. S. WILBURN, Duke U and TUNL, G. W. HOFFMANN, UT at Austin, S. I. PENTTILÄ, LANL — We present a phase shift analysis of experimental low energy polarized neutron-polarized proton cross section difference data. The mixing angle ϵ_1 characterizes the strength of the tensor interaction at low energies. With knowledge of both the transverse, $\Delta\sigma_T$, and longitudinal, $\Delta\sigma_L$, spin-dependent $\vec{n}$-$\vec{p}$ cross-section differences, a model-independent determination of ϵ_1 is possible. We summarize recent measurements at TUNL of $\Delta\sigma_T$ and $\Delta\sigma_L$ in the energy range 5-20 MeV. Single-energy, multiparameter phase-shift analyses have been performed to extract ϵ_1, $^1S_0$ and $^3S_1$, the phase shifts of most importance to low energy $\vec{n}$-$\vec{p}$ scattering. Our values are consistent with potential model predictions of Bonn and the partial-wave analyses of VPI and Nijmegen, and do not support the anomalously low values of ϵ_1 reported near 15 MeV.

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Brian W. Raichle
raichle@tunl.duke.edu
Western Carolina University

[X] Prefer Oral Session
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Special instructions: The presentation for this abstract should follow the presentation for the abstract titled: Measurement of the Longitudinal $\vec{n}$-$\vec{p}$ Cross Section Differences with 5-20 MeV Polarized Neutrons, submitted by Joseph R. Walston.

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