

Abstract Submitted  
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**Proton –  $^3\text{He}$  Elastic Scattering at Low Energies**<sup>1</sup> B. M. FISHER<sup>2</sup>,  
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tory, T. C. BLACK, University of North Carolina at Wilmington, M. VIVIANI, A.  
KIEVSKY, S. ROSATI, INFN Pisa and University of Pisa — We present new ac-  
curate measurements of the differential cross section  $\sigma(\theta)$  and the proton analyzing  
power  $A_y$  for proton– $^3\text{He}$  elastic scattering at various energies. The  $\sigma(\theta)$  distribu-  
tions have been measured at  $E_p = 0.99, 1.59, 2.24, 3.11,$  and  $4.02$  MeV. Full angular  
distributions of  $A_y(\theta)$  have been measured at  $E_p = 1.60, 2.25, 3.13,$  and  $4.05$  MeV.  
This set of high-precision data is compared to four-body variational calculations  
employing realistic nucleon-nucleon ( $NN$ ) and three-nucleon ( $3N$ ) interactions. For  
the unpolarized cross section the agreement between the theoretical calculation and  
experimental data is good when a realistic  $3N$  potential is included. However, the  
comparison between the calculated and measured proton analyzing powers reveals  
discrepancies of approximately 50% at the maximum of each distribution.

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