Abstract Submitted
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Determination of the $^1S_0$ Neutron-Neutron Scattering Length Using nd Breakup in Recoil Geometry at 19 MeV[1] S. TAJIMA, A.S. CROWELL, J. DENG, J. ESTERLINE, C.R. HOWELL, M.R. KISER, R.A. MACRI, W. TORNOW, Duke Univ. and TUNL, B.J. CROWE III, North Carolina Central Univ., R.S. PEDRONI, North Carolina A&T State Univ., W. VON WITSCH, Univ. of Bonn, H. WITAŁA, Jagellonian Univ. — There is a significant discrepancy between the recent measurements of the $^1S_0$ neutron-neutron (nn) scattering length (a_{nn}). González Trotter *et al.* [1] reported a value of $a_{nn} = -18.7 \pm 0.6$ fm from their nn coincidence cross-section measurements at a neutron beam energy of 13 MeV, while Huhn *et al.* [2] obtained $a_{nn} = -16.3 \pm 0.4$ fm from their nn final-state interaction (FSI) cross-section measurements made at 25 MeV using proton recoil geometry. We report the preliminary results of a new determination of a_{nn} at 19 MeV at TUNL made using the neutron-deuteron breakup reaction in recoil proton geometry. The recoil proton and one of the outgoing neutrons were detected in coincidence and their energies were measured using time-of-flight techniques. Details of the experiment, analysis, and preliminary results will be presented. [1]*D.E.González* Trotter *et al.*, Phys. Rev. C **73**, 034001 (2006). [2] V.H. Huhn *et al.*, Phys. Rev. Lett. **85**, 1190 (2000).

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