Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Cross section and nucleon analyzing power of *nd* breakup scattering in FSI, QFS and Space Star kinematic conditions at E_{lab} =14.1 MeV[1]

VLADIMIR SUSLOV, North Carolina Central University, MIKHAIL BRAUN, Saint-Petersburg State University, IGOR FILIKHIN, North Carolina Central University, IVO SLAUS, R. Boskovic Institute, BRANISLAV VLAHOVIC, North Carolina Central University — We study inelastic neutron-deuteron scattering on the basis of the configuration-space Faddeev-Noyes equations [1]. The Merkuriev-Gignoux-Laverne approach [2] is generalized for arbitrary nucleon-nucleon potentials and an arbitrary number of partial waves. Neutron-deuteron breakup amplitudes are calculated using the Argonne AV14 nucleon-nucleon potential at the incident neutron energy 14.1 MeV. To calculate breakup amplitudes we take into account all orbital angular momenta of subsystems ℓ and $\lambda \leq 4$, the total angular momentum of a pair nucleons $j \leq 3$, and the total three-body angular momentum M up to 13/2. The angular distribution and nucleon analyzing power $A_y$have been calculated for Final State Interaction, Quasi Free Scattering, and Space Star configurations. The results are compared with the experimental data and the prediction of the Bochum group [3]. 1. S.P. Merkuriev, Ann. Phys. (N.Y.) **130**, 3975 (1980); S.P. Merkuriev, Acta Physica (Austriaca) Suppl. XXIII, 65 (1981). 2. S.P. Merkuriev, C. Gignoux and A. Laverne, Ann. Phys. **99**, 30 (1976). 3. W. Glöckle, H. Witała, D. Hüber, H. Kamada, J. Golak, Phys. Rep. 274 (1996) 107-285.

[1]This work is supported by NSF CREST (HRD-0833184) and NASA (NNX09AV07A).

Vladimir Suslov
North Carolina Central University

Date submitted: 21 Jun 2013 Electronic form version 1.4