

Abstract Submitted
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A new method to solve the Nd breakup scattering problem in configuration space

VLADIMIR SUSLOV, BRANISLAV VLAHOVIC, North Carolina Central University — A new computational method for solving the configuration-space Faddeev equations for three nucleon system has been developed. This method is based on the spline-decomposition in the angular variable and a generalization of the Numerov method for the hyperradius. The *s*-wave calculations of the inelasticity and phase-shift, as well as breakup amplitudes for **nd** and **pd** breakup scattering for lab energies 14.1 and 42.0 MeV were performed with the Malfliet -Tjon MT I-III potential. In the case of **nd** breakup scattering the results are in good agreement with those of the benchmark solution [1],[2]. In the case of **pd** quartet breakup scattering disagreement for the inelasticities reaches up to 6% as compared with those of the Pisa group [3]. The calculated **pd** amplitudes fulfill the optical theorem with a good precision. 1. J. L. Friar, B. F. Gibson, G. Berthold, W. Gloeckle, Th. Cornelius, H. Witala, J. Haidenbauer, Y. Koike, G. L. Payne, J. A. Tjon, and W. M. Kloet, : http://link.aip.org/link/?&l_creator=getabs-normal&l_dir=FWD&l_rel=CITES&from_key=PRVCAN000069000004044003000001&from_keyType=CV Rev. C 42, 1838 (1990). 2. Frair J.L, Payne G.L., Glöckle W., Hueber D., Witala H.: Phys. Rev. C 51, 2356 (1995) 3. Kievsky A., Viviani M., and Rosati S.: Phys. Rev. C 64, 024002 (2001)

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