Faddeev Calculations for Nd Breakup Scattering within Isospin and Given Charge Formalism: Numerical Stability[1] VLADIMIR SUSLOV, IGOR FILIKHIN, North Carolina Central University, ROMAN KEZERASHVILI, New York City College of Technology, CUNY, BRANISLAV VLAHOVIC, North Carolina Central University —

The isospin and given charge models are applied for studying the Nd breakup scattering problem based on the configuration space Faddeev equations. The models are differ by the isospin basis used. The given charge formalism allows us to implement charge dependence of NN interaction for phenomenological s-wave NN potentials with adjusted parameters to define the spin singlet nn, pp and np components. Calculations of the phase shifts, in elasticities and breakup amplitudes are performed for the nd and pd scattering at E_{lab}=4.0 and 14.1 MeV for the both models. We study numerical stability of the calculations for both models with relation to known effect of oscillations of break up amplitudes with dependence on asymptotical cutoff parameter. This effect was recently predicted for quadruplet state of nd scattering in [1]. The oscillations affect at numerical solution accuracy. It was found that new approach based on the given charge formalism brings in more stable numerical solution. Preliminary results for realistic AV14 potential are presented. [1] P.A. Belov and S.L. Yakovlev, Physics of Atomic Nuclei, 76, 126-38 (2013).

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