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## DIBARYON RESONANCES AND THREE-BODY FORCES IN LARGE-ANGLE PD SCATTERING AT INTERMEDIATE ENERGIES

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The large-angle proton-deuteron (*pd*) scattering at intermediate energies 200-1000 MeV is a long-standing puzzle. While the small-angle scattering can be described well by the Glauber diffraction model or, at energies Tp < 400 MeV, by the exact solution of Faddeev equations, the strong discrepancies between theoretical predictions and experimental data at large angles need a careful treatment of 2 *N* interactions and also 3 *N* forces.

The large-angle pd scattering is accompanied with high momentum transfers and thus is related to the short NN distances where the quark structure of the nucleon can be manifested. While the accurate incorporation of the quark and gluon degrees of freedom in hadronic processes at intermediate energies is a very complicated and non-trivial task, the quark structure of the nucleon in the short-range NN interaction can be effectively treated by means of 6 q bags dressed by meson clouds (the dressed dibaryons). The dibaryon model for the NN interaction was proposed by the Moscow-Tuebingen group twenty years ago, but only recently found new experimental confirmation in NN elastic scattering and NN-induced meson production. The model has been updated to include inelastic processes and new experimental data and proved to be an adequate tool for describing both elastic and inelasctic NN scattering in the basic S, P, and D partial waves in a wide energy range from zero to about 1 GeV [1]. The dibaryon mechanism of the short-range NN interaction leads to the emergence of new three-body forces acting between the dibaryon and the third nucleon, which can give a significant contribution to the large-angle pd scattering.

In the talk, we present the preliminary calculation of the pd elastic cross section and some spin observables using the phenomenological model, which combines the basic traditional mechanisms such as one-nucleon exchange and the  $\Delta$ -isobar excitation with the new dibaryon-induced mechanisms. We extensively use the results obtained in a model [2] for the  $pp \rightarrow d\pi$ + reaction and the dibaryon parameters found experimentally. We show the important role of the known isovector dibaryons in description of the cross section and spin observables of large-angle pd scattering. This result seems to be promising in resolving the long-standing puzzles in *pd* scattering and, more generally, in the processes involving few-nucleon systems and high momentum transfers.

- 1. V.I. Kukulin et al., Phys. Lett. B 801, 135146 (2020).
- 2. M.N. Platonova and V.I. Kukulin, Phys. Rev. D 94, 054039 (2016).

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