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Dibaryon resonances and NN interaction

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The idea of an important role of dibaryon (six-quark) states in NN interaction was suggested some time ago [1]. A new interest to this idea has risen recently due to the reliable detection of the dibaryon resonances [2]. Later on, it has been shown that the mechanism with excitations of intermediate diproton resonances in isovector pp channels gives a leading contribution into polarization observables of the one-pion production in pp collisions at intermediate energies [3]. Here we examine this mechanism in elastic and inelastic NN scattering at intermediate and small energies, where an effective energy-dependent NN potential is introduced. It is shown that in the particular NN channels, where dibaryons have been found experimentally, this approach allows to reproduce real and imaginary partial NN phase shifts up to energies about 600 MeV which are far above the inelastic threshold. An effect of such type interaction on short-range NN correlations and 3N scattering is also studied.

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