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Study of deuteron-proton elastic scattering at intermediate energies.

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We study deuteron- proton elastic scattering in the GeV energy range. Nowadays, a significant amount of the experimental data at these energies has been accumulated both with unpolarized and polarized beams. However, a theoretical description of the data faces problems because of well developed Faddeev calculation technique cannot be applied at these energies.

In this report we consider deuteron- proton elastic scattering in the relativistic multiple scattering expansion framework. The following reaction mechanisms are included into consideration: one-nucleon exchange, single scattering, and double scattering. Also, the term corresponding to the delta excitation in the intermediate state is taken into account. This model is applied for a description of the experimental data both on the differential cross section and polarization observables in a whole angular range. The obtained theoretical predictions are compared with the existing experimental data. Effects of the different reaction mechanisms are analyzed.

Primary author(s) : LADYGINA, Nadezhda (JINR)

Presenter(s) : LADYGINA, Nadezhda (JINR)

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