

Abstract Submitted
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A novel treatment of the proton-proton Coulomb force in elastic pd scattering and breakup reaction¹ HENRYK WITALA, ROMAN SKIBINSKI, JACEK GOLAK, Jagiellonian University, WALTER GLOECKLE, Ruhr Universitaet Bochum — A novel approach to incorporate the proton-proton Coulomb force into the three-nucleon Faddeev calculations is presented. The main new ingredient is a 3-dimensional screened proton-proton Coulomb t-matrix obtained by a numerical solution of the 3-dimensional Lippmann-Schwinger equation. It is demonstrated numerically that the elastic proton-deuteron observables can be determined directly from the resulting on shell three-nucleon amplitude increasing the screening radius. The screening limit exists without the need of renormalization. Applying renormalization to the proton-proton half-shell t-matrix also breakup observables can be derived as is demonstrated for some exclusive breakup configurations.

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