



Contribution ID: 150

Type: Poster

Energy-dependent form factors in a QCD-inspired model

Using an eikonal QCD-based model in order to connect the semihard parton-level dynamics to the hadron-hadron scattering, we obtain predictions for the pp and $\bar{p}p$ total cross sections, $\sigma_{tot}^{pp,\bar{p}p}$, and the ratios of the real to imaginary part of the forward scattering amplitude, $\rho^{pp,\bar{p}p}$. We consider the phenomenological implications of a class of energy-dependent form factors in the high-energy behavior of the forward amplitude. Our results are consistent with the recent data from the TOTEM experiment.

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Track Classification: Field theoretical approaches to QCD