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# Unified Description of Elastic Hadron Scattering at Low and High Energies

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(OFFLINE)
A brief analysis of the development of elastic scattering models in the LHC era is presented and short overview of the results of the model
based on the analyticity of the scattering amplitude with taking into account the hadron structure for high energy hadron elastic scattering
{\rm $pp$, $p\bar{p}$, $pn$, $p\pi$ ($\sqrt{s} = 3.6$ GeV up to $\sqrt{s} = 13$ TeV ) }. The main features of the model are: a unique energy dependence of the basic asymptotic terms of the Born amplitude (all Born terms have one fixed intercept); the real part of the hadronic elastic scattering amplitude is determined only through the complex Mandelstam variable $S$ satisfying the dispersion relations; the use of two fixed forms of factors determined by different momenta of the same Generalized Parton Distribution (GPDs). We have examined the new form of the momentum transfer dependence of GPDs of hadrons to obtain different form factors, including Compton form factors, electromagnetic form factors, transition form factor, and gravitomagnetic form factors.
The negligible contributions of the hard Pomeron and the non-small contributions of the maximal Odderon were obtained. The non-dying form of the spin-flip amplitude is examined as well. The structure of the Born term and unitarized scattering amplitude are analysed. It is shown that the Black Disk Limit for the elastic scatering amplitude is not reached at LHC energies.

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