Low X workshop

Contribution ID : 67

Analysis of elastic pp scattering data from ISR to LHC energies, focussing on the dip region

Monday 03 Jun 2013 at 11:05 (00h20')

Content :

A detailed analysis of pp elastic scattering data is performed, based on a quark-diquark model that generalizes earlier models of Bialas and Bzdak, based on the model of Glauber and Velasco. The differential cross-section of elastic proton-proton collisions is reported from the energy range of sqrt(s)= 23.5 GeV to 7 TeV. These studies suggests that the increase of the total pp cross-section is mainly due to an increase of the separation of the quark and the diquark with increasing energies. Within the investigated class of models, two simple and model-independent phenomenological relation were discovered that connect the total p+p scattering cross-section to the effective quark, diquark size and their average separation, and predict the position of the dip for future LHC energies and for elastic p+A scattering at LHC.

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