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The TOTEM data at roots = 13 TeV and the enigma of the odderon

We demonstrate that a model based on CGC/saturation approach, successfully describes soft interaction collisions for a wide energy range of $W = 30 \text{ GeV}$ to 13 TeV, including the new TOTEM data at 13 TeV. Incorporating the secondary Reggeons in our approach enables us to describe the complete set of soft data, including the energy behaviour of ρ , the ratio of the real to the imaginary parts of the elastic scattering amplitude. We argue that it is premature to claim that an odderon contribution is necessary, and estimate its possible contribution as 1 mb to the real part of the amplitude at $W = 13 \text{ TeV}$. We show that the odderon contribution depends on the value of the energy, leading to $\text{Re } A(s, t=0) = 8 \text{ mb}$, at $W = 21.3 \text{ GeV}$. Bearing this in mind, we do not believe that ρ at high energy is the appropriate observable for detecting the odderon contribution.

Primary authors: Prof. GOTSMAN, Errol (Tel Aviv University); Prof. LEVIN, Evgeny (Tel Aviv University); Dr POTASHNIKOVA, Irina (Departemento de Fisica, Universidad Tecnica Fedrico Santa Maria ,Valparaiso, Chile)

Presenter: Prof. GOTSMAN, Errol (Tel Aviv University)