

The discovery of the odderon by the D0 and TOTEM collaborations

вторник, 9 ноября 2021 г. 15:30 (30)

We will describe the odderon discovery by the TOTEM and D0 experiments. The analysis compares the $p\bar{p}$ elastic cross section as measured by the D0 Collaboration at a center-of-mass energy of 1.96 TeV to that in pp collisions as measured by the TOTEM Collaboration at 2.76, 7, 8, and 13 TeV. The two data sets disagree at the 3.4 sigma level and thus provide evidence for the t-channel exchange of a colorless, C-odd gluonic compound, also known as the odderon. We combine these results with a TOTEM analysis of the same C-odd exchange based on the total cross section and the ratio of the real to imaginary parts of the forward elastic strong interaction scattering amplitude in pp scattering, leading to a combined significance larger than 5 sigma.

Primary author(s) : ROYON, Christophe

Presenter(s) : ROYON, Christophe

Session Classification : Evening session 4

Track Classification : Non-Perturbative Methods for Soft Hadron Scattering