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Observation of Diffractively Produced W bosons in pp collision with the CMS Experiment

vendredi 9 mars 2012 19:38 (5 minutes)

I present a study of the forward energy flow in leptonically decaying W bosons using data of an integrated luminosity corresponding to 36 pb-1 of pp collision data at a centre-of-mass energy of 7 TeV. This data was recorded with the CMS detector during the 2010 running of the LHC. In this sample of W events, about 300 events with a rapidity gap of no significant energy deposit in one of the forward calorimeters are observed. This corresponds to a large pseudorapidity gap of at least 1.9 units. The majority of the charged leptons from these W decays are found in the hemisphere opposite to the gap. This gives a strong indication of a diffractive component in the W production, which can be explained in terms of diffractive PDFs which peak at smaller x than the conventional proton PDFs.

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