

Diffractive processes in pp collisions measured with the CMS experiment

The differential diffractive cross section is measured as a function of $x_i = M_X^2/s$ in the region dominated by single dissociation (SD) and double dissociation (DD), where M_X is the mass of one of the two final-state hadronic systems separated by the largest rapidity gap in the event. The cross section is also measured as a function of the width of the central rapidity gap in the region dominated by DD, as well as for events with a forward gap over 8.4 units of pseudorapidity. The total SD and DD cross sections are extracted. Single diffraction is one of the main uncertainties both, experimentally and in theoretical calculations, of the particle-production cross section in proton-lead collisions as measured at the centre-of-mass energy per nucleon pair of 5.02 TeV. Furthermore, the observation of a hard color-singlet exchange process in events with a large rapidity gap between two leading jets (jet-gap-jet) is reported. The fraction of jet-gap-jet to all dijet events is measured as a function of the second leading jet transverse momentum and the size of the pseudorapidity gap.

Primary author: GOERLACH, Ulrich (Institut Pluridisciplinaire Hubert Curien (FR))

Track Classification: Multi-parton Dynamics