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Measurement of double-parton interactions in W+2 jets events with the CMS detector

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Double parton scattering is investigated in proton-proton collisions at sqrt(s) = 7 TeV where the final state includes a W boson, which decays into a muon and a neutrino, and two jets. The data sample corresponds to an integrated luminosity of 5 fbˆ(-1), collected with the CMS detector at the LHC. Observables sensitive to double parton scattering are investigated after being corrected for detector effects and selection efficiencies. The fraction of W+ 2-jet events due to double parton scattering is measured to be 0.055 +/- 0.002(stat.) +/- 0.014(syst.). The effective cross section, sigma_eff, characterizing the effective transverse area of hard partonic interactions in collisions between protons is measured to be 20.7 +/- 0.8(stat.) +/- 6.6(syst.)mb.

Primary author: GROTHE, Monika (University of Wisconsin (US))

Presenter: GREBENYUK, Anastasia (Universite Libre de Bruxelles (BE))

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