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Study of hard double parton scattering in four-jet events with the ATLAS detector

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Inclusive four-jet events produced in proton–proton collisions at a center-of-mass energy of 7 TeV have been analyzed for the presence of hard double parton scattering collected with the ATLAS detector. The contribution of hard double parton scattering to the production of four-jet events has been extracted using an artificial neural network. The assumption made was that hard double parton scattering can be represented by a random combination of dijet events. In addition, a sample enriched with double parton scattering events was extracted and several characteristics of these events were studied. The measurements have been compared to different MC generator predictions.

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