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Azimuthal correlations for inclusive 2-jet, 3-jet, and 4-jet events in pp collisions at √s=13TeV (Article) (Open Access)

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Abstract

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Azimuthal correlations between the two jets with the largest transverse momenta p_T in inclusive 2-, 3-, and 4-jet events are presented for several regions of the leading jet p_T up to 4Te. For 3- and 4-jet scenarios, measurements of the minimum azimuthal angles between any two of the three or four leading p_T jets are also presented. The analysis is based on data from proton–proton collisions collected by the CMS Collaboration at a centre-of-mass energy of 13Te, corresponding to an integrated luminosity of 35.9fb-1. Calculations based on leading-order matrix elements supplemented with parton showering and hadronization do not fully describe the data, so next-to-leading-order calculations matched with parton shower and hadronization models are needed to better describe the measured distributions. Furthermore, we show that azimuthal jet correlations are sensitive to details of the parton showering, hadronization, and multiparton interactions. A next-to-leading-order calculation matched with parton showers in the MC@NLO method, as implemented in herwig 7, gives a better overall description of the measurements than the powheg method. © 2018, CERN for the benefit of the CMS collaboration.

SciVal Topic Prominence

Topic: jets | production | parton shower

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(2016) European Physical Journal C

Measurement of differential cross sections for Z boson pair production in association with jets at s=8 and 13 TeV
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