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Measurement of EW production of $Z+2j$ at the LHC

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The electroweak production of a Z-boson in association with dijets ($Z+2j$), which includes the vector boson fusion process, is an important background to the vector boson fusion production of a Higgs boson in association with dijets. Both ATLAS [1] and CMS [2,3] have made measurements of the electroweak production of $Z+2j$. In this talk the methods and results of extracting the electroweak component of the cross section are presented. Detector-corrected distributions of hadronic jets are also presented and show sensitivity to the electroweak production process. The distributions can be used to probe the different approaches to generating both QCD and electroweak $Z+2j$ events.

References

[1] ATLAS Collaboration, *Measurement of the electroweak production of dijets in association with a Z-boson and distributions sensitive to vector boson fusion in proton-proton collisions at* $\sqrt{s}=8$ *TeV using the ATLAS detector*, JHEP 1404 (2014) 031 [arXiv:1401.7610].

[2] CMS Collaboration, *Measurement of the hadronic activity in events with a Z and two jets and extraction of the cross section for the electroweak production of a Z with two jets in pp collisions at* $\sqrt{s}=7$ *TeV*, JHEP 1310 (2013) 062 [arXiv:1305.7389].

[3] CMS Collaboration, *Measurement of pure electroweak production of a Z boson in association with two forward/backward jets in proton-proton collisions at 8 TeV*, CMS-PAS-FSQ-12-035.

Frontiers of Fundamental Physics 14 - FFP14,
15-18 July 2014
Aix Marseille University (AMU) Saint-Charles Campus, Marseille

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PoS(FFP14)113