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Measurements of the pp → WZ inclusive and differential production cross sections and constraints on charged anomalous triple gauge couplings at √s = 13 TeV (Article) [\(Open Access\)](#)

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Abstract

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The WZ production cross section is measured in proton-proton collisions at a centre-of-mass energy s = 13 TeV using data collected with the CMS detector, corresponding to an integrated luminosity of 35.9 fb⁻¹. The inclusive cross section is measured to be σ_{tot}(pp → WZ) = 48.09_{-0.96}^{+1.00} (stat) - 0.37^{+0.44} (theo) - 2.17^{+2.39} (syst) ± 1.39(lum) pb, resulting in a total uncertainty of -2.78/+2.98 pb. Fiducial cross section and ratios of charge-dependent cross section measurements are provided. Differential cross section measurements are also presented with respect to three variables: the Z boson transverse momentum p_T, the leading jet p_T, and the M(WZ) variable, defined as the invariant mass of the system composed of the three leptons and the missing transverse momentum. Differential measurements with respect to the W boson p_T, separated by charge, are also shown. Results are consistent with standard model predictions, favouring next-to-next-to-leading-order predictions over those at next-to-leading order. Constraints on anomalous triple gauge couplings are derived via a binned maximum likelihood fit to the M(WZ) variable.[Figure not available: see fulltext.] © 2019, The Author(s).

Author keywords

- Hadron-Hadron scattering (experiments)
- Particle and resonance production

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