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Observations and measurements of Z and photons' scattering and interactions with the CMS detector

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The first observation of the electroweak (EW) production of a Z boson, a photon, and two forward jets (Zγjj) in proton-proton collisions at a center-of-mass energy of 13 TeV is presented. A data set corresponding to an integrated luminosity of 137 fb−1, collected by the CMS experiment at the LHC in 2016-2018 is used. The measured fiducial cross section for EW Zγjj is 5.21±0.52(stat) ±0.56 (syst) fb = 5.21±0.76 fb. Single-differential cross sections in photon, leading lepton, and leading jet transverse momenta, and double-differential cross sections in mjj and |Δηjj| are also measured. Exclusion limits on anomalous quartic gauge couplings are derived at 95% confidence level in terms of the effective field theory operators.
See more details in arXiv:2106.11082

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