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Nuclear modification factor of isolated photon production in pp and PbPb collisions at 5.02 TeV with the CMS detector

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High-transverse-momentum prompt photons, as colorless objects, do not interact strongly with the medium and provide a direct way to test pQCD and the nuclear PDF. The transverse energy spectra and the nuclear modification factors of isolated photons are measured in pp and PbPb collisions at 5.02 TeV using the CMS detector. The data are compared to JETPHOX NLO calculations and found to be consistent with the prediction of the nuclear modification factor. The measurements significantly improve the accuracy compared to the previous CMS results at 2.76 TeV. No significant modification of isolated photon cross-sections in PbPb collisions with respect to pp collisions is observed in the pseudorapidity range $|\eta| < 1.44$ and E_T between 25 to 200 GeV at various collision centralities.

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