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Single and double diffractive prompt photon production at the LHC

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In this work we study the prompt photon production in single and double diffractive processes considering the resolved Pomeron model. We estimate the rapidity and transverse momentum dependence of the cross section for the production of two photons and of a photon and a jet. We show that these processes are sensitive to the pomeron structure. In contrast with the dijet and heavy quark production, which are dominated by gluon-gluon interactions, in prompt photon production, Compton like processes are dominant for single photon plus jet events, while in double photon production, quark-antiquark annihilation dominates. This gives a unique oportunity to constrain the quark distributions in the Pomeron. The results are obtained for the current and future LHC energies.

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