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Study of hard color singlet exchange in dijet events with proton-proton collisions at $\sqrt{s} = 13$ TeV[1] CRISTIAN BALDENEGRO[2], The University of Kansas, CMS AND TOTEM COLLABORATION[3] — A study of pp collision events where the two leading jets are separated by a pseudorapidity gap void of radiation, is presented. Both jets have $p_{T,jet} > 40$ GeV and $1.4 < |\eta_{jet}| < 4.7$, with $\eta_{jet-1} \times \eta_{jet-2} < 0$. The analysis is based on data collected by the CMS experiment during a low luminosity high-β^* run in 2015 at $\sqrt{s} = 13$ TeV, with an integrated luminosity of 0.66 pb^{-1}. The number of charged particles with transverse momentum $p_T > 200$ MeV in $-1 < \eta < 1$ is used to discriminate color-singlet exchange (CSE) dijet events from color-exchange dijet events. The fraction of CSE dijet events to all dijet events with similar kinematics, f_{CSE}, is presented as a function of various kinematic variables of interest. The results are compared to previous measurements and to perturbative quantum chromodynamics predictions. A first study of jet-gap-jet events with a leading proton using data collected jointly by the CMS and TOTEM experiments is presented. The protons are detected with the Roman pot detectors of TOTEM. The ratio f_{CSE} in this sample is found to be 2.91 ± 0.70 (stat)$^{+1.02}_{-0.94}$ (syst) times larger than in inclusive dijet production.

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