

Search for dark matter in association with a $t\bar{t}$ pair at $\sqrt{s} = 13$ TeV in the dilepton channel with the CMS experiment

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A search is performed for dark matter produced in association with $t\bar{t}$ pairs in data from proton-proton collisions at a center-of-mass energy of 13 TeV at the LHC. The data correspond to 35.9 fb⁻¹ collected with the CMS detector in 2016. The analysis looks for an excess of events with large imbalance in transverse momentum and a top quark pair. The results are interpreted in the context of simplified models of dark matter production. Assuming unitary coupling values to standard model (SM) particles g_q , and dark matter (DM) particles g_{χ} , and DM mass $m_{\chi} = 1$ GeV, the observed (expected) 95% CL exclusions for a scalar mediator are $m_{\phi} < 55$ (73) GeV, while no exclusion is expected or observed at 95% CL for the pseudoscalar mediators.

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