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Search for new physics in events with a leptonically decaying Z boson and a large transverse momentum imbalance in proton–proton collisions at $\sqrt{s} = 13$ TeV (Article) [Open Access](#)

Sirunyan, A.M.^a, Tumasyan, A.^a, Adam, W.^b, Ambrogio, F.^b, Asilar, E.^b, Bergauer, T.^b, Brandstetter, J.^b, Brondolin, E.^b, Dragicevic, M.^b, Erö, J.^b, Del Valle, A.E.^b, Flechl, M.^b, Friedl, M.^b, Frühwirth, R.^b, Gheze, V.M.^b, Grossmann, J.^b, Hrubec, J.^b, Jeitler, M.^b, König, A.^b, Krammer, N.^b, Krätschmer, I.^b, Liko, D.^b,

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Abstract

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A search for new physics in events with a Z boson produced in association with large missing transverse momentum at the LHC is presented. The search is based on the 2016 data sample of proton–proton collisions recorded with the CMS experiment at $\sqrt{s}=13$ TeV, corresponding to an integrated luminosity of 35.9fb⁻¹. The results of this search are interpreted in terms of a simplified model of dark matter production via spin-0 or spin-1 mediators, a scenario with a standard-model-like Higgs boson produced in association with the Z boson and decaying invisibly, a model of unparticle production, and a model with large extra spatial dimensions. No significant deviations from the background expectations are found, and limits are set on relevant model parameters, significantly extending the results previously achieved in this channel. © 2018, CERN for the benefit of the CMS collaboration.

SciVal Topic Prominence $\text{\textcircled{i}}$

Topic: jets | production | parton shower

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Funding details

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