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Search for narrow  $\text{H}\gamma$  resonances in proton-proton collisions at  $\sqrt{s}=13$  TeV (Article) (Open Access)

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Abstract

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A search for heavy, narrow resonances decaying to a Higgs boson and a photon ( $\text{H}\gamma$ ) has been performed in proton-proton collision data at a center-of-mass energy of 13 TeV, corresponding to an integrated luminosity of 35.9 fb<sup>-1</sup> collected with the CMS detector at the LHC in 2016. Events containing a photon and a Lorentz-boosted hadronically decaying Higgs boson reconstructed as a single, large-radius jet are considered, and the  $\Upsilon$ +jet invariant mass spectrum is analyzed for the presence of narrow resonances. To increase the sensitivity of the search, events are categorized depending on whether or not the large-radius jet can be identified as a result of the merging of two jets originating from b quarks. Results in both categories are found to agree with the predictions of the standard model. Upper limits on the production rate of  $\text{H}\gamma$  resonances are set as a function of their mass in the range of 720–3250 GeV, representing the most stringent constraints to date. © 2019 CERN for the CMS Collaboration. Published by the American Physical Society.

SciVal Topic Prominence

Topic: jets | production | parton shower

Prominence percentile: 99.875

Indexed keywords

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