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## Search for low-mass resonances decaying into bottom quark-antiquark pairs in proton-proton collisions at $s=13$ TeV (Article) [\(Open Access\)](#)

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### Abstract

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A search for narrow, low-mass, scalar, and pseudoscalar resonances decaying to bottom quark-antiquark pairs is presented. The search is based on events recorded in  $s=13$  TeV proton-proton collisions with the CMS detector at the LHC, collected in 2016, and corresponding to an integrated luminosity of 35.9 fb<sup>-1</sup>. The search selects events in which the resonance would be produced with high transverse momentum because of the presence of initial- or final-state radiation. In such events, the decay products of the resonance would be reconstructed as a single large-radius jet with high mass and two-prong substructure. A potential signal would be identified as a narrow excess in the jet invariant mass spectrum. No evidence for such a resonance is observed within the mass range from 50 to 350 GeV, and upper limits at 95% confidence level are set on the product of the cross section and branching fraction to a bottom quark-antiquark pair. These constitute the first constraints from the LHC on exotic bottom quark-antiquark resonances with masses below 325 GeV. © 2019 CERN, for the CMS Collaboration. Published by the American Physical Society under the terms of the »<https://creativecommons.org/licenses/by/4.0/>« Creative Commons Attribution 4.0 International license. Further distribution of this work must maintain attribution to the author(s) and the published article's title, journal citation, and DOI. Funded by SCOAP 3 .

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