

Search for low mass vector and scalar resonances decaying into quark-antiquark pairs in proton-proton collisions using the full CMS Run 2 dataset

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A search for low mass narrow vector resonances decaying into quark-antiquark pairs at high transverse momentum is presented. The analysis is based on data collected in Run 2 with the CMS detector at the LHC in proton-proton collisions at $\sqrt{13}$ TeV. Signal candidates are reconstructed as large-radius jets and identified using the ParticleNet algorithm. This analysis presents the most sensitive limits in the boosted topology for couplings to a new vector resonance (Z') as well as couplings to a new scalar resonance (Φ). The invariant jet mass spectrum is probed for a potential narrow peaking signal over a smoothly falling background. Upper limits at the 95% confidence level are set on the coupling of narrow resonances to quarks, as a function of the resonance mass. For masses between 50 and 300 GeV, these are the most sensitive limits to date.}

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