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Search for Narrow Resonances in the b-Tagged Dijet Mass Spectrum in Proton-Proton Collisions at root s=8 TeV

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Abstract

A search for narrow resonances decaying to bottom quark-antiquark pairs is presented, using a data sample of proton-proton collisions at root s = 8 TeV corresponding to an integrated luminosity of 19.7 fb⁻¹. The search is extended to masses lower than those reached in typical searches for resonances decaying into jet pairs at the LHC, by taking advantage of triggers that identify jets originating from bottom quarks. No significant excess of events is observed above the background predictions. Limits are set on the product of cross section and branching fraction to bottom quarks for spin 0, 1, and 2 resonances in the mass range of 325-1200 GeV. These results improve on the limits for resonances decaying into jet pairs in the 325-500 GeV mass range.

Keywords

KeyWords Plus: QUARK CONTACT INTERACTIONS; ANGULAR-DISTRIBUTIONS; P(P)OVER-BAR COLLISIONS; ATLAS DETECTOR; PP COLLISIONS; COMPOSITENESS; COLLIDER; BOSONS

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