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 compétition)

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Search for single production of a vector-like quark via a heavy gluon in the $4b$ final state with the ATLAS detector in pp collisions at $\sqrt{s} = 8$ TeV

Tuesday 14 June 2016 19:00 (2 minutes)

A search is performed for the process $pp \rightarrow G^* \rightarrow B_H \bar{b} / \bar{B}_H b \rightarrow H b \bar{b} \rightarrow b \bar{b} b \bar{b}$, predicted in composite Higgs scenarios, where G^* is a heavy colour octet vector resonance and B_H a vector-like quark of charge $-1/3$. The data were obtained from pp collisions at a centre-of-mass energy of 8 TeV corresponding to an integrated luminosity of 19.5 fb^{-1} , recorded by the ATLAS detector at the LHC. The largest background, multijet production, is estimated using a data-driven method. No significant excess of events with respect to Standard Model predictions is observed, and upper limits on the production cross section times branching ratio are set. Comparisons to the predictions from a specific benchmark model are made, resulting in lower mass limits in the two-dimensional mass plane of m_{G^*} vs. m_{B_H} .

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