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Measurement of the top pair invariant mass distribution at 7 TeV and search for New Physics

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We present a measurement of the top-pair mass in $t\bar{t}$ events by using proton-proton collisions at the LHC at a centre-of-mass energy of 7 TeV. We use data collected with the CMS experiment during the year 2011. The analysis is performed in all possible final states originating from top-pair production, and the full event reconstruction is performed by using different reconstruction methods according to the final state under consideration. The measurement is then used for searching for production of a massive, narrow-width, neutral boson decaying into top-pairs. We observe no significant deviations from the QCD expectations, therefore we translate the measurement into an upper limit on the new physics production cross-section as a function of the particle mass.

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