

Measurement of Higgs-boson properties at the CMS experiment

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Using the full amount of LHC Run1 data at 7 and 8 TeV, the CMS experiment has investigated the properties of the newly discovered boson, using in particular the four-lepton and two-photon decay modes, which are the most sensitive and allow for a full reconstruction of the decaying resonance.

The mass of the boson has been measured to a precision better than 1 GeV using both channels and finding results compatible with the hypothesis of a single resonance. Many J^{PC} hypotheses different from the SM prediction of 0^{++} , including states of mixed spin and parity, have been ruled out at more than 95% CL.

Finally, constraints on the total Higgs boson width, using both direct measurements at the peak and off-shell production and decay to ZZ, have been set.