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Measurements of the properties of the Higgs boson

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The discovery of a new heavy boson with a mass near 125 GeV at CERN's LHC experiments opened new horizons at Energy Frontiers. This particle is consistent with the Higgs boson predicted by the Standard Model (SM). Despite this discovery completed the SM, major questions still remain unresolved. Search for physics beyond the SM through precision measurements of the Higgs boson properties is one of the major efforts of the CMS experiment at the LHC proton collider today.

The presented results are based on the 2011 and 2012 data recorded with the CMS detector, corresponding to an integrated luminosity of 5.1 fb-1 at center-of-mass energy of 7 TeV and 19.6 fb-1 at 8 TeV. The event yields obtained by the different analyses targeting specific decay modes and production mechanisms are consistent. The consistency of the couplings and the spin-parity of the observed boson with those predicted for the SM Higgs boson is tested in various ways, and no significant deviations are found so far. Finally, the prospects for the Higgs boson properties measurement at the high-luminosity LHC with CMS will be discussed.

Presentation type

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