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Studies of Higgs spin and parity with the ATLAS detector at the LHC

Studies of the spin and parity quantum numbers of the Higgs boson candidate are presented. They are based on pp collision data collected by the ATLAS experiment at the LHC. The Standard Model spin–parity JP = 0+ hypothesis is confronted with alternative models using the kinematic properties of the Higgs boson decays into H⟶ γγ , H⟶ WW*⟶ lνlν and H ⟶ ZZ* ⟶ 4l final states, and their combinations. The datasets used correspond to integrate luminosity of 20.7 fb−1 collected at sqrt(s) = 8 TeV, and for the H ⟶ ZZ* channel an additional dataset corresponding to an integrated luminosity of 4.8 fb−1 at sqrt(s) = 7 TeV is added.

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