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Searches for invisible Higgs at the LHC

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The results from searching for invisible decay of Higgs bosons at LHC are presented. No significant excess is found beyond the Standard Model prediction, and new limits are set on the production cross section times invisible branching fraction, as a function of the Higgs boson mass, using a combination of data collected in proton-proton collisions at center-of-mass energies of 7 TeV and 8 TeV by the ATLAS and CMS detectors. Assuming the Standard Model Higgs boson cross sections and acceptances, the upper limits on the invisible branching fraction are found at CMS at $m_H = 125$ GeV by combining vector boson fusion, associated $Z(\ell^+\ell^-)H$ and $Z(b\bar{b})H$ production modes and at ATLAS at $m_H = 125.5$ GeV using $Z(\ell^+\ell^-)H$ production. An interpreted upper limit is also presented on the allowed dark matter-nucleon scattering cross section in Higgs-portal dark matter scenarios.

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