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Tools for the Higgs boson CP studies: JHUGen and MELA

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In this talk we discuss the MC simulation (JHUGen) and analysis tools based on matrix element approach (MELA) to study the extent to which CP parity of a Higgs boson H(125), and more generally its anomalous couplings to gauge bosons and fermions, can be measured in Run2 of LHC. We consider several production processes, including Higgs boson production in gluon and weak boson fusion and production of a Higgs boson in association with an electroweak gauge boson or heavy-flavor quarks. Both on-shell and off-shell production of the H(125) boson are considered. In the study of decay kinematic correlations, we consider decays of a Higgs boson to ZZ, Zgamma, gamma gamma, and WW, with either real or virtual bosons.

Oral or Poster Presentation

Oral

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