

Higgs + photon and triboson production as probes of Higgs Yukawa couplings

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The measurement of Yukawa couplings of the 125 GeV Higgs boson to light SM fermions (weakly constrained at present, particularly for first-generation fermions) is very challenging experimentally, yet key to unravel the details of the mass generation mechanism for the first two generations of matter and establish the role of the SM Higgs in such a mechanism. We discuss two recently proposed ways to constrain these Yukawa couplings at the LHC and future hadron colliders: Higgs production in association with a photon, and the production of three massive SM gauge bosons. We explore the sensitivity reach of both of them, and for the latter we briefly discuss the pros and cons of off-shell Higgs probes of SM Higgs couplings.

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