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Probing the Higgs-charm Yukawa coupling at CMS

The measurement of the Higgs-charm Yukawa coupling is one of the next milestones in Higgs physics at the LHC and serves as another test of the consistency of the Standard Model. The Higgs-charm coupling may be experimentally probed in different ways. These include for example searches for signatures where a Higgs boson directly decays to a pair of charm and anti-charm quarks or where a charm quark couples to the Higgs boson in the initial state. This poster presents recent, novel CMS results ([1][2][3]) which probe such signatures and place significant constraints on $|\kappa_c|$.
Bibliography:
[1] Search for Higgs boson production in association with a charm quark in the diphoton decay channel, CMS-PAS-HIG-23-010
[2] Search for gammaH production in pp collisions at sqrt{s} = 13 and constraints on the Yukawa couplings of light quarks to the Higgs boson using data from the CMS detector, CMS-PAS-HIG-23-011
[3] Search for Higgs boson decay to a charm quark-antiquark pair via ttH production, CMS-PAS-HIG-24-018

Secondary track

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