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Phenomenology of Theories with Enhanced Higgs Yukawas

We present a phenomenological program to look for extended Higgs sectors with large couplings to light quarks. These theories come with complementary features in flavor physics, precision Higgs studies, and searches for new resonances. The most striking signals of these theories resonant production of Higgs pairs via quark fusion, with larger rates than models usually studied at the LHC, but they also lead to large deviations in predictions for the SM Higgs signal strengths, and new signals in dijet channels. In addition to laying out this phenomenology, we'll propose several directions for further scrutiny of these theories at both the LHC and future lepton and hadron colliders.

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