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Higgs pair production at the LHC: SM and beyond

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Higgs pair production is key to extract information on the Higgs potential as it consists the simplest process which is sensitive to the trilinear Higgs coupling. A considerable amount of work has been devoted recently towards providing accurate SM predictions and investigating the prospects of observing the process at the LHC. While the SM rates are small (35 fb) at 14 TeV, the process can receive significant enhancements from Beyond the SM physics, with a wide range of scenarios studied phenomenologically. In this talk, I will review recent progress in the computation of the SM Higgs pair production cross section at the LHC. Moreover I will discuss possible new physics effects in the process, presenting results in the 2HDM and within the EFT framework, as representative BSM scenarios.

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