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## Higgs pair production in $bb\gamma\gamma$ final state with ATLAS Run 2 at LHC

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The Higgs boson self-coupling provides information about the structure of the Higgs potential. A direct probe of the self-coupling of the Higgs boson is possible by studying Higgs boson pair production. Furthermore, an enhancement of the Higgs boson pair production rate with respect to the Standard Model (SM) prediction would point to new beyond-the-Standard-Model (BSM) physics and may be within the sensitivity reach of the proton-proton collision data collected at  $\sqrt{s} = 13$  TeV during the Run 2 of the Large Hadron Collider (LHC).

On the other hand, many BSM theories predict existence of new heavy scalar particles, analysis has been performed by searching for new scalar with different masses in range between 251 GeV and 1 TeV.

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