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## **Prospects for HH measurements at the HL-LHC with CMS**

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### **Summary**

The LHC machine is planning an upgrade program which will smoothly bring the luminosity at about  $5 \cdot 10^{34} \text{cm}^{-2}\text{s}^{-1}$  in 2028, to possibly reach an integrated luminosity of 3000-4000  $\text{fb}^{-1}$  by the end of 2037. This High Luminosity LHC scenario, HL-LHC, will require a preparation program of the LHC detectors known as Phase-2 upgrade. The prospects for the study of Higgs boson pair production at the HL-LHC with the upgraded CMS detector are presented, in five decay channels,  $bbbb$ ,  $bbWW$ ,  $bb\tau\tau$ ,  $bb\gamma\gamma$ , and  $bbZZ$ .

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