



Contribution ID: 374

Type: **Poster submission**

Prospects for HH measurements at the HL-LHC with CMS

Monday 5 August 2019 15:40 (20 minutes)

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 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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Session Classification: Poster Session (Mon/Tue)

Track Classification: Collider – Beyond Standard Model Searches