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Prospects on HH production at the HL-LHC with the CMS experiment

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Observing double Higgs production (HH) will enable a direct determination of the Higgs self-coupling, a crucial parameter of the Standard Model. Given the extreme small rate of this process, detecting it will only be possible with the HL-LHC and the 3 ab-1 of data it is expected to provide, and with an upgraded CMS detector capable to cope with high levels of radiation and pileup. Sensitivity studies on HH, based on the projected performance of the CMS Phase II detector, as well as extrapolations of Run 2 searches for HH production to the ultimate HL-LHC luminosity, are presented.

Presenter: Mr WERTZ, Sebastien (Universite Catholique de Louvain (UCL) (BE))

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