



PARTICLE PHYSICS SEMINAR

HIGGS PAIR PRODUCTION
SEARCHES WITH THE
ATLAS EXPERIMENT AT
THE LARGE HADRON
COLLIDER

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08

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Exploring the Higgs potential and electroweak symmetry breaking is one of the main goals of the LHC. Higgs pair production (HH) provides experimental access to the shape of Higgs potential and is the only direct probe of the Higgs self-coupling in proton-proton collisions. In this talk, I will discuss the search for HH production with a focus on the $\beta\beta\gamma\gamma$ channel with the ATLAS experiment at the LHC. I will present the latest joint results in which the $\beta\beta\gamma\gamma$, $\beta\beta\tau\tau$, and $\beta\beta\beta\beta$ channels were combined to produce some of the most stringent limits on Standard Model HH production and the Higgs self-coupling to date. Based on these results, I will also discuss our projected sensitivity to HH production at the HL-LHC