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Searches for resonances decaying into Higgs boson pairs with the ATLAS Experiment

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Many new physics models predict the existence of resonant states decaying into two bosons, including the Higgs boson or new scalar S bosons. These processes provide crucial signatures in the search for physics beyond the Standard Model and may offer insights into the mechanism of electroweak symmetry breaking. In this talk, the latest results from searches for resonant Higgs boson pair (HH) production and Higgs-scalar (SH) production are presented, focusing on findings from the full LHC Run 2 dataset at 13 TeV, along with the inclusion of available Run 3 results where relevant.

Secondary track

T09 - Beyond the Standard Model

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