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Search for Higgs boson pair production in the $bbWW^*$ channel with the ATLAS detector

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Search for resonant Higgs boson pair production, where one Higgs boson decays to bb and the other to WW , using the full Run 2 data of proton-proton collisions collected at a center-of-mass energy of 13 TeV with the ATLAS detector. The trilinear coupling leads to non-resonant pair production of Higgs bosons, where an off-shell Higgs decays to a pair of Higgs bosons. Physics beyond the SM can manifest in the resonant production of new particles that decay into a pair of SM Higgs bosons. This study is potentially sensitive to cases where the decaying particle is a scalar, as in the MSSM and 2HDM models, or a spin-2 graviton, as in Randall-Sundrum models.

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