Contribution ID: **194**   Type: **talk**

Search for di-Higgs production with ATLAS experiment in the bblvlv final state

Monday, 12 July 2021 17:15 (15 minutes)

A search for Higgs boson pair production in bbll+MET final state with the ATLAS experiment will be presented. The analysis uses the full Run~2 data-set (139fb−1) collected at the LHC in pp collisions at √s=13TeV. Di-Higgs boson production from the SM tri-Higgs-boson interaction and from BSM resonant decays are investigated with a final state containing two jets (one or two tagged as b-jets) and two leptons with opposite electric charge. Three different channels where one of the Higgs bosons decays via H→bb and the other via H→WW∗/ZZ∗/τ+τ− are included as di-Higgs signals contributions in the analysis. A deep-learning neural network has been used for event selection to improve the ATLAS di-Higgs boson detection sensitivity. The expected upper limits on the cross-sections were investigated based on MC simulated events.

Are you are a member of the APS Division of Particles and Fields?

Yes

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Session Classification: Higgs & Electroweak Physics

Track Classification: Higgs & Electroweak Physics