Contribution ID: **1174** Type: **BSM**

Searches for BSM Higgs bosons at ATLAS

Wednesday 26 May 2021 14:30 (15 minutes)

The discovery of the Higgs boson with the mass of about 125 GeV completed the particle content predicted by the Standard Model. Even though this model is well established and consistent with many measurements, it is not capable to solely explain some observations. Many extensions addressing this shortcoming introduce additional Higgs-like bosons which can be either neutral, singly-charged or even doubly-charged. Other theories suggest that the Higgs boson may couple to hidden-sector states that do not interact under the Standard Model gauge transformations. Models predicting exotic Higgs boson decays to pseudoscalars can explain the galactic centre gamma-ray excess, if the additional pseudoscalar acts as the dark matter mediator. This talk presents recent ATLAS searches for decays of the 125 GeV Higgs boson to a pair of new light bosons, and searches for additional Higgs bosons, based on full Run 2 data of the ATLAS experiment at the LHC.

Summary

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Session Classification: Higgs III