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Higgs boson combination measurements using up to 139 ifb of pp collision data at sqrt(s)=13 TeV collected by the ATLAS

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With the data collected during the ATLAS Run-2, a combination of measurements of Higgs boson production cross sections and branching fractions is presented. Compared with the previous combination measurement, Zy decay mode is included for the first time. And also a few additional production processes in the bb and tautau decays channels. Several of the previous input measurements are updated to the full Run2 data set. The global signal strength, defined as the measured Higgs boson signal yield normalized to its SM prediction, is determined to be 1.06 ± 0.06. Measurements in kinematic regions defined within the simplified template cross section framework are also reported. The results are interpreted in terms of modifiers applied to the Standard Model couplings of the Higgs boson to other particles, and are also used to set exclusion limits on parameters in the Standard Model Effective Field Theory framework and in several benchmark scenarios of the Two Higgs Doublet Model. No significant deviations from Standard Model predictions are observed.

In-person participation

No

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