



MEETING OF THE AMERICAN PHYSICAL SOCIETY DIVISION OF PARTICLES AND FIELDS

Contribution ID: 89

Type: **Presentation**

Combined measurements of the Higgs boson production and decay rates using pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS Experiment

Monday, 31 July 2017 14:10 (20 minutes)

After the Higgs boson was discovered at the LHC in 2012, it is of great importance to study how the Higgs boson interacts with Standard Model particles. In this presentation, I will report on the combined measurements of Higgs boson production and decay rates using LHC Run 2 proton-proton collision data collected at the center-of-mass energy of 13 TeV by the ATLAS detector in 2015 and 2016. The combination is based on the analysis of five production processes, namely gluon fusion, vector boson fusion, and associated production with a W or a Z boson or a pair of top quarks, and of multiple decay modes. I will also discuss how the measurements constrain the Higgs boson's couplings to Standard Model particles as well as the existence of new physics.

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Session Classification: Higgs and EWSB

Track Classification: Higgs and EWSB