



Contribution ID: 89

Type: Young Scientists Forum (YSF)

## A search for the dimuon decay of the Standard Model Higgs boson in pp collisions at 13 TeV with the ATLAS Detector

*Tuesday 12 April 2022 18:35 (8 minutes)*

A search for the dimuon decay of the Standard Model (SM) Higgs boson is performed using data corresponding to an integrated luminosity of 139/fb collected with the ATLAS detector in Run2 pp collisions at 13 TeV at the Large Hadron Collider. The observed (expected) significance over the background-only hypothesis for a Higgs boson with a mass of 125.09 GeV is  $2.0\sigma$  ( $1.7\sigma$ ). The observed upper limit on the cross section times branching ratio is 2.2 times the SM prediction at 95% confidence level, while the expected limit on a  $H \rightarrow \mu\mu$  signal assuming the absence (presence) of a SM signal is 1.1 (2.0). The best-fit value of the signal strength parameter, defined as the ratio of the observed signal yield to the one expected in the SM, is  $\mu=1.2 \pm 0.6$ .

**Authors:** CHEN, Ye (University of Science and Technology of China (CN)); CHEN, Ye (Hefei University of Science and Technology of China)

**Presenters:** CHEN, Ye (University of Science and Technology of China (CN)); CHEN, Ye (Hefei University of Science and Technology of China)

**Session Classification:** YSF