

# Search for rare decays of the Standard Model Higgs boson with the ATLAS detector

*Thursday, November 10, 2022 3:55 PM (15 minutes)*

The Standard Model predicts several rare Higgs boson decay channels, among which are decays to a Z boson and a photon,  $H \rightarrow Z\gamma$ , and to a low-mass lepton pair and a photon  $H \rightarrow l\bar{l}\gamma$ , and a pair of muon. The observation of  $Z\gamma$  decays could open the possibility of studying the CP and coupling properties of the Higgs boson in a complementary way to other analyses. In addition, the search for Higgs decays into a vector quarkonium state and a photon provides access to charm- and bottom-quark couplings alternative to the direct  $H \rightarrow b\bar{b}/c\bar{c}$  search. Several results for decays based on pp collision data collected at 13 TeV will be presented.

## Type of talk

Experimental measurements

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**Session Classification:** Thursday Session B

**Track Classification:** Physics Topics: Beyond the Standard Model