

Measurements of Higgs boson associate production with a leptonically decaying vector boson in the H to $b\bar{b}/c\bar{c}$ decay channel within the ATLAS detector

With the highest expected branching-ratio (56%), the Higgs boson decay into a b -quark pair plays a crucial role in the determination of the Higgs Yukawa couplings, as well as its general properties. On the other end, the Higgs boson is expected to decay to c -quarks much more rarely, with a branching-ratio of 3%, and the search of this decay requires the state of the art of jet identification and analysis techniques. At the LHC, the best sensitivity to the $H \rightarrow b\bar{b}/c\bar{c}$ decay is achieved exploiting the associate production of the Higgs boson with a vector boson, requesting its leptonic decay allowing for an efficient trigger capability and an effective multi-jet background rejection. In this talk, measurements of Higgs boson decays into b/c -quarks produced in association with a vector boson, made by the ATLAS experiment using the full Run2 dataset at \sqrt{s} 13 TeV, are shown, together with the results of the combinations of the two channels.

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