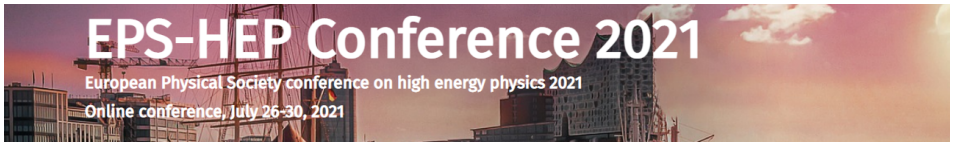

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Search for the Decay of the Higgs Boson to Charm Quarks with the ATLAS Experiment

A direct search for the Standard Model Higgs boson decays to a pair of charm quarks is presented, probing the Higgs boson Yukawa couplings to the second generation of fermions. This analysis makes use of the full LHC Run 2 dataset collected with the ATLAS detector, corresponding to an integrated luminosity of 139 fb-1 of proton collisions at a centre-of-mass energy of 13 TeV. Higgs boson production in association with a W or Z boson is targeted, where only leptonic W/Z boson decays are considered. The analysis is then divided in three channels according to the reconstructed lepton multiplicity. Both charm and bottom jet tagging algorithms are used to identify the signature of the Higgs boson decays to charm quarks, while reducing contamination from Higgs boson decays to bottom quarks. This search is expected to improve the constraint on the Higgs boson decays to charm quarks cross-section previously presented by ATLAS, using an integrated luminosity of 36 fb-1 of proton collisions at the same centre-of-mass energy.

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