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Measurement of the Higgs coupling to top quarks with four-top-quark production

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Recent observation of four-top-quark production by ATLAS and CMS has opened a new channel for measurement of the top-Higgs Yukawa coupling y_t as the four-top cross-section receives contributions from tree-level diagrams mediated by an off-shell Higgs boson. This measurement complements constraints placed on y_t from top-associated Higgs production and from resolving the loops in gluon-gluon fusion production and diphoton decays of the Higgs boson because the four-top measurement differs significantly in final state and in the modelling assumptions made about the Higgs. This talk will present the measurement of four-top production using data from 140 fb⁻¹ of proton-proton collisions recorded with the ATLAS detector and the interpretation of this measurement as a constraint on y_t .

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