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Search for associated production of a Higgs boson with a single top quark

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We present a search for the production of a Higgs boson in association with a single top quark (tHq), using data samples collected by the CMS detector in pp collisions at center-of-mass energy of 8 TeV corresponding to integrated luminosity of 19.7 fb^{-1} . The search exploits a variety of top quark and Higgs boson decay modes resulting in final states with photons, bottom quarks, or multileptons, and employs a variety of machine learning techniques to maximize the sensitivity to the signal. The present analysis is optimized for a scenario where the Yukawa coupling has sign opposite to the standard model prediction, which would result in a large enhancement of the signal cross section. Results for individual final states and a combined result will be presented.

Oral or Poster Presentation

Oral

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