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Measurement of the $t\bar{t}H$, $H \rightarrow b\bar{b}$ decay with RunII data and prospects for RunIII

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The search for the associated production of a Higgs boson with a top quark-antiquark pair will be presented. Candidate $t\bar{t}H$ events are selected with criteria enhancing respectively the dileptonic, semileptonic and fully hadronic decay channels of the $t\bar{t}$ system and the decay of the Higgs boson into a bottom quark-antiquark pair ($H \rightarrow b\bar{b}$). In order to increase the sensitivity of the search, selected events are split into several categories with different expected signal and background rates. A combined fit of multivariate discriminant templates across all categories and decay channels is performed to extract the result. Results for RunII data will be presented. Prospects for improvements towards RunIII will also be discussed.

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