

## Heavy Quarks and the Higgs: Unraveling the Top Quark's Best Friends

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Top quark pair production in association with heavy flavor jets, particularly bottom and charm jets, serves as a valuable probe of the Standard Model. This talk will present recent results from the ATLAS experiment on  $t\bar{t}$ +heavy flavor jet production and  $t\bar{t}H$  production where the Higgs decays to  $b\bar{b}$ , based on 13 TeV proton-proton collision data. Differential cross-sections and the interactions between top quarks and heavy flavor jets will be explored, highlighting how these measurements enhance the understanding of top quark properties and its connection to the Higgs boson. These insights offer a deeper perspective on the behavior of top quarks and the dynamics of the Higgs field..