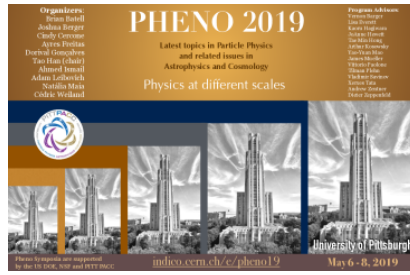


## Phenomenology 2019 Symposium



Contribution ID: 745

Type: **parallel talk**

## Anatomy of the $t\bar{t}h$ Physics at HL-LHC

Monday 6 May 2019 15:45 (15 minutes)

In this ongoing work, we study the phenomenology of Higgs pair production with a pair of top quarks ( $pp \rightarrow t\bar{t}h$ ) at the HL-LHC. Several final state/channels are simulated and evaluated with the help of multivariable analysis techniques. It turns out that the multi- $b$  + single lepton channel contributes the most to the signal significance, followed by the same-sign dilepton channel. The constraints on  $hhh$  and  $t\bar{t}hh$  couplingss are comparable to those gained from Di-Higgs or VBF analyses. We also discuss the potential of  $t\bar{t}hh$  as a probe of resonances in new physics such as top partner pair production or heavy Higgs bosons.

### Summary

**Authors:** LIU, Tao (The Hong Kong University of Science and Technology); Ms LI, Yingying (HKUST); LI, LINGFENG (UC Davis)

**Presenter:** LI, LINGFENG (UC Davis)

**Session Classification:** Higgs I