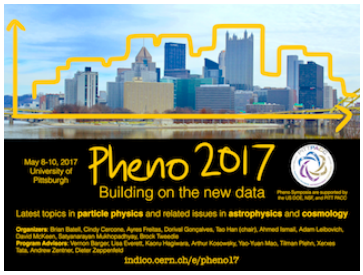

Contribution ID: **389** Type: **parallel talk**

ee to httbar as a probe of Higgs CP property

Tuesday 9 May 2017 14:45 (15 minutes)

We calculate the helicity amplitude of $e^+e^- \to ht\bar{t}$, where the Higgs boson h(125) is assumed to be a CP mixed state with both CP-even and CP-odd components. The amplitudes depend both on the CP violating htt Yukawa coupling and the CP conserving hZZ coupling. We calculate the helicity amplitudes in the tt rest frame, where the initial e^+e^- current and the final Higgs boson have the same three-momentum. CP violating asymmetries appear not only in the azymuthal angle between the e^+e^- to the Higgs production plane and the htt decay plane, which have been studied in the past, but also in the correlated angular distributions of charged leptons from t and t decays. Complete description of the production and decay angular distributions is obtained analytically, and the distributions of CPV observables from final state of top pair decays semileptonically are investigated. We also study the ultimate sensitivity to the CP violating htt coupling at the international linear colliders in its various running scenarios.

Summary

e+ e- collider

Authors: Prof. HAGIWARA, Kaoru (KEK); Dr YOKOYA, Hiroshi (KIAS); Dr ZHENG, Ya-Juan (Osaka University); ZHENG, Ya-Juan

Presenters: Dr ZHENG, Ya-Juan (Osaka University); ZHENG, Ya-Juan

Session Classification: BSM Higgs II