



Contribution ID: 326

Type: **Parallel session talk**

## Determination of CP-violating Higgs couplings with transversely-polarized beams at the ILC

*Thursday 24 August 2023 09:06 (18 minutes)*

e study possible CP-violation effect of the Higgs to Z boson coupling at the future  $e^+e^-$  collider. We find that the azimuthal angular distribution of the muon, produced by  $e^+e^- \rightarrow HZ \rightarrow H\mu^-\mu^+$ , can be sensitive to such a CP-violation effect when we apply initial transversely polarized beams. Based on this angular distribution, we construct a CP sensitive asymmetry, and obtain this asymmetry by Whizard simulation. By comparing the SM prediction with  $2\sigma$ -range of this asymmetry, we estimate the discovery limit of the CP-odd coupling in HZZ interaction, which is  $\tilde{c}_{AZZ} \in [-0.1, 0.1]$  for  $500 \text{ fb}^{-1}$ , and  $\tilde{c}_{AZZ} \in [-0.05, 0.05]$  for  $2000 \text{ fb}^{-1}$ .

### Collaboration / Activity

Non

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**Session Classification:** T09 Higgs Physics

**Track Classification:** Higgs Physics