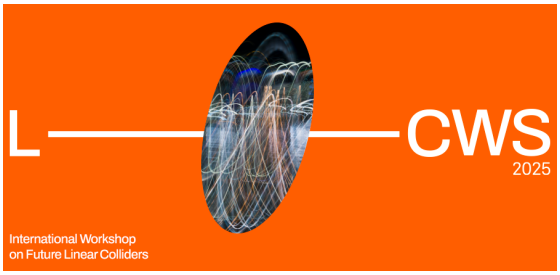

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Possibility of probing an extra Higgs boson at future linear e+e- colliders

Tuesday 21 October 2025 12:50 (20 minutes)

We investigate the possibility of probing an extra Higgs boson at future linear e^+e^- colliders. We consider the $e^+e^- \to H\nu\bar{\nu}$ production process, followed by $H \to W^+W^-$ decay, where H is the extra CP-even Higgs boson of the general two Higgs doublet model. This process is governed by the CP-even Higgs mixing angle, $\cos\gamma$, offering direct access to this parameter. We discuss constraints on $\cos\gamma$ from existing LHC data. We perform a full Monte Carlo simulation of the signal and background, and show that an extra Higgs boson in the mass range $200 \leq m_H \leq 400$ GeV could be probed at high energy linear e^+e^- colliders. Promising results are found for CLIC running at 1.5 and 3 TeV collision energies.

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