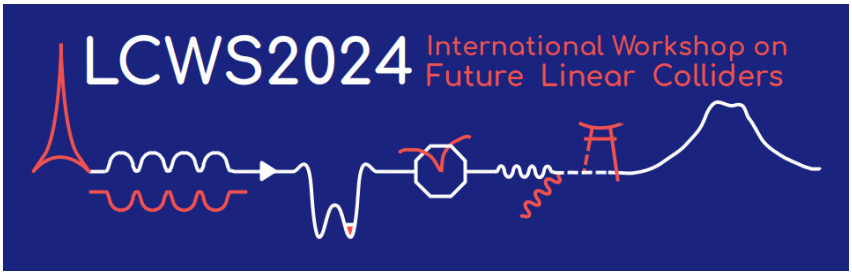

Contribution ID: **113** Type: **Oral presentation (in person)**

Prospects of measuring quantum entanglement in H->tautau at a future e+e- Higgs factory

Tuesday, 9 July 2024 09:50 (20 minutes)

Final states with spin-correlations allow the measurement of quantum entanglement at collider energies. The $H \to \tau\tau$ process is an excellent probe for this, due to the scalar nature of the Higgs boson, and the direct access to the τ-lepton helicity through the angular distributions of the τ-lepton decay products. We will present the prospects of such a measurement a future e^+e^- Higgs factory using Delphes simulation samples for the signal and the relevant background processes. The construction of observables sensitive to quantum entanglement of the τ-τ system will be discussed together with the impact of reconstruction and event selection effects on the sensitivity.

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