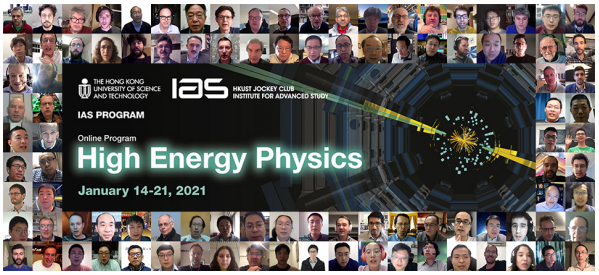

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CP-violating Higgs di-tau decay at future lepton colliders

We demonstrate how probes of CP-violating observables in Higgs di-tau decays at prospective future lepton colliders could provide a test of weak scale baryogenesis with significant discovery potential. Measurements at the Circular Electron Positron Collider, for example, could exclude a CP phase larger than 2.9◦ (5.6◦) at 68% (95%) C.L. assuming the Standard Model value for magnitude of the tau lepton Yukawa coupling. Conversely, this sensitivity would allow for a 5σ discovery for 82% of the CP phase range [0,2π). The reaches of the Future Circular Collider - ee and International Linear Collider are comparable. As a consequence, future lepton colliders could establish the presence of CP violation required by lepton flavored electroweak baryogenesis with at least 3σ sensitivity. Our results illustrate that Higgs factories are not just precision machines but can also make O(1) measurement of the new physics beyond the Standard Model.

Scheduling Preferences

Primary author: Prof. GE, Shao-Feng (TDLI-SJTU)

Presenter: Prof. GE, Shao-Feng (TDLI-SJTU)