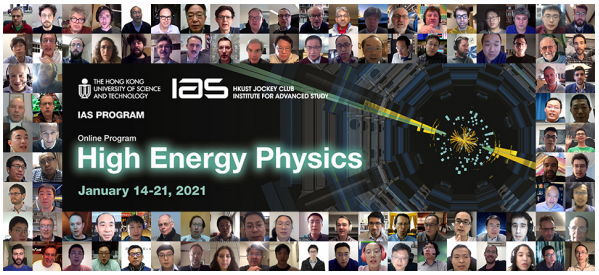

Contribution ID: **22** Type: **not specified**

Lepton as the source of EW baryogenesis

An electroweak baryogenesis (EWBG) mechanism mediated by τ lepton transport is proposed. We extend the Standard Model with a real singlet scalar S to trigger the strong first-order electroweak phase transition (SFOEWPT), and with a set of leptophilic dimension-5 operators to provide sufficient CP violating source. We demonstrate this model is able to generate the observed baryon asymmetry of the universe. This scenario is experimentally testable via either the SFOEWPT gravitational wave signals at the next-generation space-based detectors, or the $pp \to h^* \to SS \to 4\tau$ process (where h^* is an off-shell Higgs) at the hadron colliders. A detailed collider simulation shows that a considerable fraction of parameter space can be probed at the HL-LHC, while almost the whole parameter space allowed by EWBG can be reached by the 27 TeV HE-LHC.

Scheduling Preferences

Author: XIE, Ke-Pan (Seoul National University)

Presenter: XIE, Ke-Pan (Seoul National University)