



Contribution ID: 109

Type: Oral presentation (in person)

New collider implications on a strongly first order EWPT.

Wednesday 10 July 2024 16:45 (15 minutes)

In order to understand the early history of the universe, and to test baryogenesis models, determining the nature of the electroweak phase transition is imperative. The order and strength of this transition is strongly correlated to relatively large deviations in the hhh coupling. In models where a considerable part of the hhh coupling deviation is caused by charged particle loops, the $h\gamma\gamma$ coupling is also expected to deviate considerably. In this talk, by using a model-independent approach, I explain how to obtain conditions that are sufficient for a strongly first order phase transition. After the $h\gamma\gamma$ is determined with precision at the HL-LHC, these conditions can be tested at Future Linear Colliders by measurements of the hhh coupling, to conclusively determine the nature of the electroweak phase transition and the viability of electroweak baryogenesis on models with new charged scalars.

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Session Classification: Higgs, Electroweak

Track Classification: Physics and Detector: Higgs, Electro-Weak