



Contribution ID: 85

Type: **Oral presentation (in person)**

Collider Tests of Nanohertz Gravitational Waves

Tuesday 9 July 2024 11:00 (15 minutes)

Recently, compelling evidence of nanohertz gravitational waves is indicated by the pulsar timing array collaborations. In this talk, I will present an MeV-scale first-order phase transition from a minimal dark sector to explain the gravitation waves, with a focus on the collider tests via a minimal Higgs portal. I will demonstrate that to explain the observed gravitational waves, the Higgs portal coupling should be so sizable that it can be probed through Higgs invisible decay at the LHC and future lepton colliders such as CEPC, ILC, and FCC-ee. It opens up a promising avenue to uncover the physical origin of the nanohertz GWs via colliders and to hear and see the minimal dark.

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Session Classification: Higgs, Electroweak

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