

Gravitational Wave from Metastable SUSY Breaking

Thursday, 9 November 2023 11:00 (30 minutes)

We examine the cosmological evolution of the vacuum structure in the Intriligator-Shih-Seiberg (ISS) model of metastable supersymmetry breaking by taking into account the constraints on reheating temperature, which is needed to avoid the overproduction of gravitinos. It turns out that the desired phase transition from a supersymmetric vacuum to a metastable vacuum is allowed only in the light gravitino mass region. That is achieved by either rolling down a potential or tunneling processes depending on the reheating temperature. We show that abundant gravitational waves could be produced if a tunneling process is realized in our universe. They are detectable with the future gravitational wave interferometers like LISA and DECIGO.

Presenter: CHU, Chong-Sun (NTHU)

Session Classification: BSM/DM