

Gravitational Wave Probes of Physics Beyond Standard Model 2

Contribution ID : 16

Gravitational waves induced by scalar perturbations in the early Universe

Thursday 01 Dec 2022 at 16:00 (00h30')

Content :

In this talk, I will talk about two topics on GWs induced by scalar perturbations.

One is about the enhancement of induced GWs with a sudden reheating, named the “Poltergeist mechanism”. When the universe experiences an early matter-dominated era that ends with a sudden reheating, the induced GWs are much enhanced due to fast oscillations of the scalar perturbations after the reheating. I will explain the essence of this mechanism. This part will be based on arXiv:1904.12879, 1904.12878, 2003.10455.

The other is about GWs induced by a heavy spectator field that starts to oscillate during inflation. During the oscillation of the spectator field, the spectator field fluctuations can get resonantly amplified in some potentials. I will show that these amplified fluctuations can induce large GWs, which could be investigated by future gravitational wave observations. This part will be based on arXiv:2203.04974.

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