



Contribution ID: 111

Type: **Contributed talk in mini symposium**

Ultra-high frequency gravitational waves from inflaton decay

Thursday, December 14, 2023 5:15 PM (15 minutes)

Since the models of inflation compatible with CMB data require non-renormalizable inflaton potentials, it is natural to have extra couplings between inflaton and gravitons. The suppression scale of such operators can well be lower than the Planck scale. Due to these couplings, inflaton can produce high frequency gravitons during reheating due to both decay and bremsstrahlung process. In my talk, I will present results of computation of the gravitational wave signal strength coming from these processes, as well as graviton contribution to the number of relativistic degrees of freedom. Remarkably, in the case of low reheating temperature, even Planck-suppressed operators lead to potentially measurable contribution to the dark radiation.

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Session Classification: Dark Matter