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Gravitational waves from first-order phase transition during inflation

Tuesday, 23 February 2021 14:00 (1 hour)

I will talk about the properties of the gravitational wave (GW) signals produced by first-order phase transitions during the inflation era. I will show that the power spectrum of the GW oscillates with its wave number. This oscillatory feature corresponds to the instantaneous nature of the first-order phase transition. I will also show that we can get information about how the universe evolves during and after inflation from the slopes of different parts of the spectrum. I will also present simple models that first-order phase transition can happen and finish during inflation. I will also show that this signal can be observed directly by future terrestrial and spatial GW detectors and through the B-mode spectrum in CMB.

Presenter: Prof. HAIPENG AN (Tsinghua University)