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Gravitational waves from feebly interacting particles in a first order phase transition

Friday, 9 December 2022 10:00 (1 hour)

In most studies of gravitational waves from first order cosmological phase transitions, it is assumed that the released vacuum energy gets transformed either to bubble wall collisions, or to sound waves in the plasma. In this talk, I consider an alternative possibility that has so far not been considered: the released energy gets transferred primarily to feebly interacting particles that do not admit a fluid description but simply free-stream individually. I will discuss the formalism to study the production of GWs from such configurations, and demonstrate that such GW signals have qualitatively distinct characteristics compared to conventional sources and are potentially observable with near-future GW detectors.

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