Contribution ID: 31

Black holes and gravitational waves from slow phase transitions

Tuesday 29 October 2024 14:00 (20 minutes)

Slow first-order phase transitions generate large inhomogeneities that can lead to the formation of primordial black holes (PBHs). We show that the gravitational wave (GW) spectrum then consists of a primary component sourced by bubble collisions and a secondary one induced by large perturbations. The latter gives the dominant peak if $\beta/H_0 < 10$, impacting, in particular, the interpretation of the recent PTA data. The GW signal associated with a particular PBH population is stronger than in typical scenarios because of a negative non-Gaussianity of the perturbations and it has a distinguishable shape with two peaks.

Author: TOCZEK, Piotr (University of Warsaw)

Presenter: TOCZEK, Piotr (University of Warsaw)