

What the heck happens when the Universe boils?

Contribution ID: 6

Type: **not specified**

Bubble wall velocities in local thermal equilibrium

Tuesday, 6 December 2022 11:00 (1 hour)

The bubble wall velocity in first-order cosmological phase transitions is crucial for phenomenological studies of, for example, the production of stochastic gravitational waves and electroweak baryogenesis. It is commonly expected that a friction force on the bubble wall can only arise from out-of-equilibrium effects. In this talk, I will discuss the bubble wall motion in local thermal equilibrium. We show that there is a nonvanishing effective friction even in local thermal equilibrium provided that the plasma temperature distribution is inhomogeneous. Further, we propose a new matching condition from local entropy conservation. With this, we are able to determine the bubble velocities in local thermal equilibrium algebraically (with some approximations).

Presenter: WEN YUAN AI (Kings College London)