



Contribution ID: 154

Type: **not specified**

## Phase transitions in the early universe: a 2PI approach

*Wednesday, 3 May 2023 15:00 (20 minutes)*

Gravitational waves from phase transitions in the early universe pose one of our most promising probes of beyond the standard model physics. However, existing perturbative methods for false vacuum decay rate calculations are limited to weakly coupled theories. Recently, we have proposed a new, non-perturbative quasi-stationary effective action for false vacuum decay rate calculations based on the non-perturbative functional renormalization group, and in this talk I will discuss work to extend this quasi-stationary method to the language of the 2PI formalism. This work opens the door to non-perturbative decay rate calculations in strongly coupled BSM theories and new avenues for precision decay rate calculations in the standard model.

**Primary author:** HALL, Eleanor

**Co-authors:** Dr CROON, Djuna (IPPP Durham); Dr MILLINGTON, Peter (University of Manchester)

**Presenter:** HALL, Eleanor

**Session Classification:** Early Universe