Contribution ID: **28** Type: **Contributed Talk**

Revisiting the phase transition of the flaton potential

Tuesday 10 December 2024 14:30 (20 minutes)

Recently, there has been a lot of attention given to cosmological first-order phase transitions in various contexts. To achieve a strong first-order phase transition a flat symmetry-breaking potential is commonly required. For instance, a classically scale invariant potential can provide such a flat potential, $V \sim \phi^4 \log \phi$, albeit with a large dilution factor and run-away bubbles. Another example of a flat potential can arise from supersymmetric theories, which can even forbid the existence of a tree-level quartic coupling for the 'flaton' field altogether, potentially modifying the predicted properties of the phase transition. In the past it has been argued that thermal fluctuations dominate over bubble nucleation in such models precluding a strong phase transition and therefore gravitational wave signals. We revisit the flaton potential and, with the aide of numerical simulations, determine the fate of the flaton potential during its phase transition.

Author: DUTKA, Tomasz (Korea Institute for Advanced Study)

Presenter: DUTKA, Tomasz (Korea Institute for Advanced Study)

Session Classification: Early Universe