

Biséminaire Friedmann CPHT-LLR

29 septembre 2023

salle de conférences du LLR
(aile 5 - centre)

Oleg Lebedev
University of Helsinki

Gravity, dark matter and its detection

Abstract: I will discuss gravitational dark matter production in the Early Universe and how it spoils predictivity of most non-thermal dark matter models. I will give an example of a class of models that are free from such uncertainties known as « stronger coupling freeze-in » and discuss observational prospects for this framework.

11:00 am

Slava Mukhanov
Ludwig-Maximilians-Universität München

False vacuum decay: thick wall approximation

Abstract: I will consider the case where the potential for the scalar field is either unbounded from below or the second minimum corresponding to the true vacuum has a depth exceeding the height of the potential barrier. In this case, the materialized bubbles dominating the vacuum decay naturally have a thick wall and the thin-wall approximation is not applicable. In such a case the main contribution to the action determining the decay probability of the false vacuum comes from the part of the solution for which the potential term in the equation for instantons can be neglected compared to the friction term. I show that the developed approximation exactly reproduces the leading order results for the few known exactly solvable potentials.

2:30 pm