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Seminar of the theory group of APC

Mardi 30 Novembre 2021, 14 :00
APC, contact roperpol@apc.in2p3.fr for Zoom meeting details
Domaines : gr-qc

Titre : *On the perturbative expansion at high temperature and implications for cosmological phase transitions*

Orateur : **Oliver Gould (University of Nottingham)**

Résumé : *A first-order phase transition in the early universe would have given rise to a stochastic gravitational wave background which may be observable today. In this talk, I will focus on the crucial problem of making reliable predictions of the thermodynamics of such phase transitions in the face of infrared Bose enhancements at high temperature. Such enhancements lead to large theoretical uncertainties in perturbation theory at low orders. I will unravel the structure of the perturbative expansion in this context, and of the misalignment between loop and coupling expansions. I will also outline recent works which have tested the convergence of perturbative theory as applied to cosmological phase transitions, and which offer concrete encouragement for the prospect of learning about particle physics from gravitational wave experiments. I will finish by commenting on open questions and future directions.*
