

SEMINARIO
Departamentos de Física Teórica I y II
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TITULO: Stochastic growth of massless scalar fields revisited

LUGAR: FACULTAD DE CIENCIAS FÍSICAS UCM

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ABSTRACT

Recently, it has been shown that the growth of fluctuations in a class of massless fields (flat directions of the MSSM) during inflation gets blocked due to their coupling to other fields. In this talk I investigate the stochastic evolution of a generic, coupled massless field and the conditions necessary to circumvent such blockage. I argue that if the massless field begins with a non-vanishing expectation value above certain scale, its coupling to another field is unable to restrain its random motion, which then becomes a diffusive one. I then go on to show that in the presence of such coupling the growth of inhomogeneities proceeds at a much slower rate than in the uncoupled case, and provide a new, more general expression for the mean-square field that properly takes into account its coupling.