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Particle Theory Seminar of LPT Orsay

Jeudi 21 Mars 2019, 16 :00
LPT, 114
Domaines : hep-ph

Titre : *Helical Dark Matter Fields and the end of inflation*

Orateur : **Roberto Vega Morales (Granada U.)**

Résumé : *In this talk a new production mechanism for vector dark matter (VDM) is presented in which the VDM is produced at the end of inflation. This mechanism relies on a pseudo scalar coupling between the inflaton and the vector field strength which leads to a tachyonic instability and exponential production of one transverse polarization of the vector field, reaching its maximum near the end of inflation. These polarized transverse vectors can account for the observed dark matter relic density in the mass range micro-eV to tens of TeV. Furthermore, since they are produced coherently with very high occupation number and with a single polarization, the nature of the VDM today is in the form of helical dark matter fields who's typical size is determined by the Hubble scale at the end of inflation. Some of the potential phenomenology of these objects is also discussed.*