SEMINARIO DEL DEPARTAMENTO DE FÍSICA TEÓRICA

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Local Phenomenology in Landscape Theories

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Abstract: The idea that the fundamental theory of nature does not have a unique ground state, but rather can have very many possibilities, is the key assumption of theories with a "landscape". In this talk, I will try to propose some relevant phenomenology that can be done in such theories within our domain. Since there are many Yukawa couplings in the Standard Model, this includes an attempt to understand an underlying distribution for the Yukawas. There are, in addition, atomic constraints that come from the requirement that nuclei and atoms exist. I will discuss some of my recent work on such constraints. Finally, these considerations bear on one of the key issues of particle physics: the Higgs vev. I will discuss an attempt to use the atomic constraints to provide a likelihood function for the value of the Higgs vev.