Large Extra Dimensions and Grand Unification at the Electroweak Scale

RAFAEL LOPES DE SÁ, Stony Brook University

— In this talk, I’ll motivate the introduction of extra dimensions by describing the hierarchy problem of the Standard Model and will show, very generally, how this idea can help to solve it. Then, I’ll present the most common theoretical frameworks where extra dimensions are considered: ADD, DDG, UED and the warped model of RS. The next step will be to briefly discuss the phenomenology of these models. I’ll focus on accelerator experiments phenomenology and will discuss the new spectra of particles and the possible different reaction channels where these particles can be looked for. In the end, I’ll review the recent search for these reactions in the D0 experiment at Fermilab. If I have time, I’ll make some comments on the possible relation of these models with larger theoretical frameworks such as String Theory.