Séminaire commun

Modern Perspectives on Naturalness

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Saclay & ENS

Lundi 6 Novembre 2023 à 14:00

LPENS – E239 (24 Rue Lhomond)

Résumé

The two parameters of the Standard Model that have the strongest impact on physics at low energy are also the most sensitive to the details of the theory at high energies. They are the cosmological constant and the Higgs boson mass. Experimentally they are both associated to scales that we can measure. Theoretically they force us to ask questions about physics at higher energies, possibly all the way to the Planck scale. At the moment we do not understand their measured values. The difficulty has the same origin for both parameters and can be traced to the symmetries of fundamental interactions. I will review how to state precisely the two problems and what are their possible solutions, focussing mostly on the Higgs boson mass. The review will be concise and aimed at highlighting the qualitative differences between distinct ideas, with some attention devoted also to more recent and radical proposals.