

SU(6) gauge-Higgs grand unification

lundi 30 mai 2022 16:30 (20 minutes)

In this proposed talk, we present a gauge-Higgs grand unification setup that employs 5D warped space with a SU(6) bulk gauge field that includes both a SU(5) grand unified theory (GUT) and a Higgs sector as a scalar component of the 5D vector field, solving the hierarchy problem. By appropriately breaking the gauge symmetry on the boundaries of the extra dimension the issue of light exotic new states, appearing generically in such models, is eliminated and the SM fermion spectrum is naturally reproduced. The Higgs potential is computed at one-loop, finding straightforward solutions with a realistic $m_h=125$ GeV. Some of the exotic particles in the model include a scalar leptoquark, a scalar singlet and the usual X and Y gauge bosons from SU(5) GUTs. Although the latter are very light, and are expected to mediate proton decay, this issue is solved by showing baryon number to be a hidden symmetry of the model. The flavor constraints coming from FCNCs in the quark and lepton sectors are discussed.

Orateur: BALLY, Andreas (Max Planck Institute for Nuclear Physics)

Classification de Session: Parallel session 3