

New Paradigm for Physics beyond the Standard Model

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The great desert hypothesis in particle physics defines the relation between the electroweak scale and the high scale where an unified theory could describes physics. In this talk we review the desert hypothesis and discuss the main experimental constraints from rare decays. We present a new class of theories for the TeV scale where the desert hypothesis is not needed. In this context one predicts the existence of new particles with baryon and lepton numbers called lepto-baryons.

The implications for cosmology, collider experiments and the unification of forces are discussed.