

Criteria for Natural Hierarchies

Thursday, 18 December 2014 11:30 (1 hour)

I revisit the issue of naturalness, discussing some of the implicit assumptions that underly most of the discussions on this topic. I discuss a more pragmatic definition of the hierarchy problem that does not rely on peeking beyond the murky boundaries of quantum field theory and investigate the fine-tuning of the electroweak scale associated with thresholds from heavy particles, which are both calculable and dependent on the nature of the would-be ultraviolet completion of the Standard Model. More concretely, I discuss different manifestations of new high-energy scales that are favored by experimental hints for new physics with an eye toward making use of fine-tuning in order to determine natural regions of the new physics parameter space.

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