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Protecting the Stability of the EW Vacuum

Tuesday 27 November 2018 10:40 (35 minutes)

The EW vacuum, the state where our universe has settled, is a metastable state (false vacuum), and if only Standard Model interactions are considered, its lifetime turns out to be much larger than the age of the universe. It is well known, however, that the EW vacuum lifetime is extremely sensitive to unknown (but necessarily present) high energy new physics: the latter can enormously lower the vacuum lifetime. This poses a serious problem for the stability of our universe, demanding for a physical mechanism that protects it from a disastrous decay. After presenting the general question of the EW vacuum stability, I will discuss symmetries, physical models, and model-independent effects that provide stabilizing mechanisms protecting our universe from decay.

Content of the contribution

Theory

Primary author: BRANCHINA, Vincenzo (University of Catania)**Presenter:** BRANCHINA, Vincenzo (University of Catania)**Session Classification:** Plenary**Track Classification:** [2] Emergence of symmetries from entanglement