

Phenomenology 2023 Symposium



Contribution ID: 123

Type: not specified

A Guide to Anomaly-Mediated Supersymmetry Breaking QCD

Tuesday 9 May 2023 15:15 (15 minutes)

Recently it has been demonstrated that anomaly-mediated supersymmetry breaking (AMSB) is a valuable tool for understanding the low-energy phases of non-SUSY gauge theories. For example, applying AMSB to SUSY $SU(N)$ gauge theories with quarks in the fundamental leads to scalar potentials with chiral symmetry breaking minima. Furthermore, the application of AMSB to a class of SUSY $SO(N)$ gauge theories gave the first analytic demonstration of confinement, via the dual Meissner effect, and continuous chiral symmetry breaking in a non-SUSY gauge theory. In this talk I will review these developments and then begin an exploration of the rich moduli space structure of AMSB-deformed $SU(N)$ gauge theories. In particular, SUSY-broken gauge theories often possess baryonic runaways to incalculable minima with field VEVs of order Λ_{QCD} . For a large class of theories, we instead find that the naive tree level runaways are stabilized by AMSB loop effects. This provides good evidence that the chiral symmetry breaking minima found in the small SUSY breaking limit are in fact global minima.

Primary authors: GOMES, Andrew Wesley; NOETHER, Bea; CSAKI, Csaba (Cornell University); ROY VARIER, Digvijay (University of California, Berkeley); MURAYAMA, Hitoshi; Dr TELEM, Ofri (UC Berkeley)

Presenter: GOMES, Andrew Wesley

Session Classification: SM III