



Contribution ID: 170

Type: **not specified**

From $SU(N)$ Seiberg-Witten Theory to Adjoint QCD

Thursday 26 August 2021 23:05 (30 minutes)

Standard lore suggests that four-dimensional $SU(N)$ gauge theory with 2 massless adjoint Weyl fermions ("adjoint QCD") flows to a phase with confinement and chiral symmetry breaking. In this talk, we will test and present new evidence for this lore. Our strategy involves realizing adjoint QCD in the deep IR of a renormalization group flow descending from $SU(N)$ Seiberg-Witten theory, deformed by a soft supersymmetry-breaking mass for its adjoint scalars. A crucial role in the analysis is played by a dual Lagrangian that originates from the multi-monopole points of Seiberg-Witten theory, and which can be used to explore the phase diagram as a function of the supersymmetry-breaking mass. The semi-classical phases of this dual Lagrangian suggest that the softly broken $SU(N)$ theory traverses a sequence of phases, separated by first-order transitions, that interpolate between the Coulomb phase of Seiberg-Witten theory and the confining, chiral symmetry breaking phase expected for adjoint QCD.

Author: NARDONI, EMILY (University of California, Los Angeles)

Co-authors: Prof. D'HOKER, Eric (University of California, Los Angeles); Prof. DUMITRESCU, Thomas (University of California, Los Angeles); Dr GERCHKOVITZ, Efrat (University of California, Los Angeles)

Presenter: NARDONI, EMILY (University of California, Los Angeles)

Session Classification: Formal SUSY Theories

Track Classification: Formal SUSY Theories