

Bifurcations in the RG-Flow of QCD

Wednesday, 19 December 2018 16:45 (20 minutes)

In this talk, I'll discuss the connection between the theory of dynamical systems and renormalization group flows in quantum field theory. In particular, I'll apply numerical methods from bifurcation analysis to study the RG-flow of an effective model for QCD with a four-fermi interaction and an arbitrary number of colors and massless flavors. Using bifurcation analysis techniques, new fixed points are found in and close to the conformal window. Particular focus will be given to the way in which the fixed points (dis)appear in the model, and how this affects the scaling dimensions of the (ir)relevant operators. Furthermore, I'll discuss how the fixed point structure of the RG-flow changes when a scalar field coupling through a Yukawa interaction is added to the model.

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