

# Asymptotic Safety and the Litim Sannino Model

*Thursday, 11 April 2024 09:15 (60)*

When studying the running of coupling constants in some theories - including the Standard Model of particle physics - we may find that perturbation theory cannot be used to describe the theory for very low or very high energy scales. The assumption of an ultra-violet (UV) interacting Fixed Point (FP) can preserve the theory from running into infinity. This solution is called Asymptotic Safety (AS). I will present a toy model of non-abelian gauge fields and quarks in the large  $N_c$  limit and show how the theory at the UV FP is described by only one (small and positive) real parameter, so that all the interesting quantities are polynomials in such parameter. I will present both a perturbative and a non-perturbative analysis of the UV FP and discuss the validity of the assumption of AS as a function of the single parameter of the theory.

**Presenter(s)** : RIZZO, Daniele (National Center for Nuclear Research (NCBJ), Warsaw, Poland)