

Lattice field theory: $SU(2)$ with $N_f = 2, 4, 6$ and 8 fundamental fermions.

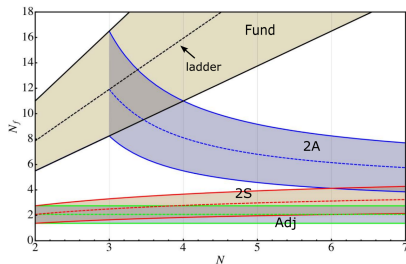
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- Standard Model: succesful, but not perfect
⇒ "Beyond the Standard Model" proposals
- We study one of the BSM scenarios: Technicolor
 - Early TC: just copy QCD to higher energies, and call it Technicolor
 - We need: 1) a new strong force and 2) new particles
 - 1) explains EW symmetry breaking
 - 2) Higgs made of techniquarks, new composite particles possible
- But due to experimental observations: the coupling constant must walk (in QCD it runs)
 - i.e remain almost constant $g \sim g_*$ over large scale separation
- Walking behaviour: at the lower boundary of the conformal window?

Conformal window

- Conformal window: range of N_f (=number of new fermions), where the $SU(N)$ theory has IRFP
 - Infrared fixed point (IRFP): β -functions zero at g_*
- IRFP at strong coupling: perturbative analysis not valid \Rightarrow Lattice simulations required
- We study: $SU(2)$ with $N_f = 2, 4, 6$ and 8 fundamental fermions
 - what happens when we are approaching conformal window?



Ref. [Sannino, Tuominen]