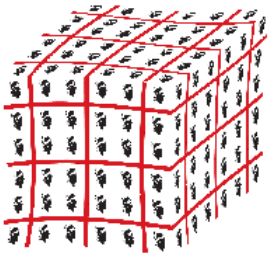

Contribution ID: **4** Type: **not specified**

Properties of gauge orbits

Friday, 18 June 2010 16:40 (20 minutes)

In gauge theories, all physically equivalent field configurations lie on a common gauge orbit. Selecting a particular representative on the gauge orbit fixes a gauge. This is useful for practical reasons, like to facilitate calculations of gauge-invariant observables, or to provide gauge-dependent correlation functions which can serve as input for methods other than lattice. It is also of fundamental interest, as many questions, e.g. related to confinement and interactions of gluons, can be most easily formulated in a fixed gauge.

However, non-perturbatively the presence of Gribov copies complicate a unique choice, affecting correlation functions severely at or below scales of 1 GeV. This non-perturbative structure of gauge orbits is investigated in detail using lattice gauge theory. In particular, possibilities how to define and implement consistently the non-perturbative extensions of the Landau gauge are discussed. This includes many details on the properties of gauge orbits, and thus of the underlying structure of gauge theories on the level of the gauge fields. Also, the resulting gauge-dependence of correlation functions will be presented.

Please, insert your presentation type (talk, poster)

talk

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