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From the Gribov ambiguity to confining effective models

Monday 8 May 2017 11:00 (30 minutes)

In this talk we discuss recent developments in the quantization of Yang-Mills theories in the non-perturbative regime and possible phenomenological applications. In particular, we discuss how the procedure that takes into account the presence of Gribov copies in the gauge path integral has led to the construction of a scenario of gluon confinement via an infrared effective action, the (refined) Gribov-Zwanziger theory. Motivated by the importance of implementing confinement in low-energy QCD effective models in a dynamical way, we shall present a confining quark model that aims at the extension of this picture to the matter sector. In this model, interactions are encoded in a nonlocal quark propagator that displays dynamical chiral symmetry breaking in the infrared, while reproducing the perturbative expectations in the deep ultraviolet limit.

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