Contribution ID: **281** Type: **Poster Presentation**

suitability of quadratic gauge for non-perturbative QCD

Wednesday, 6 July 2016 16:10 (1h 50m)

Abstract content
   (Max 300 words)
Formatting &
Special chars

The confinement and the gribov ambiguity are two non-perturbative phenomena of great importance in QCD. Abelian dominance, a signature to the confinement, is mostly studied in Maximal abelian gauge which is Abelian projection. The Gribov ambiguity exists in various gauges. Algebraic gauges are more likely to be ambiguity free but are not compatible with the boundary conditions i.e.,the ambiguity continues to exist on a compact manifold. In general, algebraic gauges are not Lorentz invariant, which is their fundamental flaw. We consider a quadratic gauge, which is an algebraic gauge. It is Lorentz invariant and does not fall into the class of Abelian projection. We show that the gauge has two strong signatures of the confinement. We then provide an example of spherically symmetric gauge field and prove that with a proper boundary condition on the configuration, this gauge removes the ambiguity on a compact manifold $\mathbb{S}^3$. Thus, It is more suitable for the non-perturbative phenomena in QCD.

Apply to be
 considered for a student
   award (Yes / No)?

yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

phd

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

yes

Please indicate whether
this abstract may be
published online
(Yes / No)

no

Primary author: Mr RAVAL, Haresh (Indian institute of Technology Bombay)

Presenter: Mr RAVAL, Haresh (Indian institute of Technology Bombay)

Session Classification: Poster Session (2)

Track Classification: Track G - Theoretical and Computational Physics