SEMPARIS – Séminaires en région parisienne

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Seminar of the theory group of APC

Mardi 20 Novembre 2018, 14 :00
APC, 646 A - Mondrian
Domaines : hep-th

Titre : *Perturbative study of infrared QCD*

Orateur : **Marcela Peláez (Universidad de la Republica, Montevideo)**

Résumé : *Quantum Chromodynamics, the microscopic theory of strong interaction, is asymptotically free. As a consequence, perturbation theory is a useful tool to study high energy phenomena. In the opposite regime, the infrared, QCD is believed to be non-perturbative. However, last decade lattice simulations have showed that the coupling constant is finite in the infrared and not so big. That makes us think that some features of infrared QCD could be understood using perturbation theory. Moreover, the completely gauge-fixed Lagrangian is not known in the infrared. We propose then to use a gauge-fixed Lagrangian motivated by lattice simulations and use perturbation theory to study the infrared. We find that the first loop correction for Yang-Mills propagators and vertices reproduces lattice results with great accuracy. In addition, I will present preliminary results for the two loop corrections which confirm the validity of perturbation theory in order to study of Yang-Mills quantities.*