Dedication

This work is dedicate

To my parents

and

That gave me hope and lit my way companion of my life and Sora (my wife)

and

To my dear brother and sisters

First I thank GOD who made all things possible. Sconed I am extremely grateful to my supervisor Dr.Ehmed Elhassn who encouraged me to write in this topic, my deep thank to my all teachers in Sudan university of science and technology also present thank to my colleagues at all Sudan university. Finally this acknowledge not complete without thanking my family whose support me.

Abstract

We analyze the Wilson loop for a pure Yang-Mills theory, using adecoupling solution in close agreement with lattice computations. At one-gluon exchange level it is seen that the potential cannot yield a linear rising contribution as expected for a confining theory. Next-to-leading order

correction gives rise to aquartic term for moment a in the gluon propagator that, inagreemen with Gribov’s view, yields a linear confining term. This correction is due to a two-loop or sunriseintegral that we need to evaluate in the low-momenta limit. In the infrared regime, the physical consistency of the theory is determined by a natural cut-off, arising from the integration of the classical equations of the theory, fixing in this way the regularization scheme.

ملخص البحث

Abstract in Arabic

قمنـا بتحليـل حلقـة ويلسـون لنظريـة يونـج ميلـز باسـتخدام الحـل المقترن والذي يتوافق مع الحسابات الشبيكية.
مستوى جسـيم الغـالون واحـد المتبـادل لا يظهـر الجهـد خطيـاً كمـا متوقع بالنسبة للنظرية المحددة. ممـا يقودنـا الـي التصـحيح بظهـور حركة جسيم الكوارك بزخم) وذلك خلال انتشار الغـالون. وبالاتفـاق مع وجه نظر جريوف، ينتـج حـد خطـي متوقـع، هـذا التصـحيح علـى حسب علاقتين او ظهور المساحة الشمسية والـتي نحتاجهـا لتقـدير اقل حد للزخم.
فـي منطقـة الاشـعة تحـت الحمـراء المكونـات الفيزيائيـة للنظريـة المحــددة بــالقطع الطـبيعي الــذي يظهــر مــن تكامــل المعــادلات الكلاسيكية للنظرية مصطلحباً لطريقة مخطط التسوية.

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