Contribution ID : **96** Type : **not specified**

Interplay between temperature, Magnetic Field and the Dynamical Masses

Tuesday, 10 November 2009 19:45 (0:15)

Abstract content

Summary

Using the Schwinger-Dyson equation, we study the behavior of the dynamical mass generation in the presence of external conditions such as temperature and magnetic fields. We find the existence of criticality for temperature in the former case and the well known phenomenon of magnetic catalysis in the latter case. Moreover, we present the study of the dynamical mass generation when both ingredients are present simultaneously. We go beyond the constant mass approximation and calculate the momentum dependent mass. We study the interplay between temperature, magnetic field and the dynamical fermion mass. Going beyond the constant mass approximation allows us to study not only infrared quantities such as the dynamical masses but also the chiral quark condensate which can be related to the ultraviolet tail of the mass function.

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Session Classification : Non perturbative methods in FT I