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Correlation Functions and Confinement in Scalar QCD

One of the choices to understand a theory, and hence the physics involved, is understanding the correlation functions. QCD in confinement regime serves as one of the ideal areas for non-perturbative calculations since they are not accessible in perturbative sense. A number of scenarios have been proposed about QCD confinement, thus necessitating non-perturbative calculations to be performed in order to check which one(s) of them is(are) acceptable. Since the physics of QCD confinement does not depend upon the number of colors and whether the matter fields are scalars or not, cheaper computation can be carried out using lattice methods with scalar matter fields and 2 colors in order to be able to address the problem mentioned above.

Propagators and interaction vertices of matter and gauge fields, calculated in Landau gauge, are presented.

Primary author: Dr MAAS, Axel (Friedrich Schiller University, Jena, Germany)

Co-author: Mr MUFTI, Tajdar (Friedrich Schiller University, Jena, Germany)

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