Contribution ID : **50** Type : **QCD and Hadrons**

Numerical Loop-Integration Methods for Finite Temperature Effects in QCD Sum Rules

Tuesday, 9 February 2021 16:45 (15)

Thermal field theory is the extension of quantum field theory to a non-zero temperature environment and is achieved by modifying the propagators in loop integrations represented by Feynman diagrams. The program package pySecDec is designed to numerically calculate dimensionally-regularized loop integrals in quantum field theory using the sector decomposition approach. It is shown how pySecDec can be applied to thermal field theory numerical calculation using modifications within the Matsubara formalism. Using the formulated algorithm, a 2-point correlation function (such as those occurring in QCD correlation functions) at finite temperature can be numerically calculated for a variety of spacetime dimensions. The topologies of the Feynman diagrams that the algorithm is targeting would occur in QCD sum rules.

email address

sil185@mail.usask.ca

Please select: Experiment or Theory

Theory

Primary author(s) : LI, Siyuan (University of Saskatchewan); Dr STEELE, Tom; Dr HARNETT, Derek

Presenter(s) : LI, Siyuan (University of Saskatchewan)