



Contribution ID: 172

Type: **Parallel**

Minkowski-space solutions of the Schwinger-Dyson equation for the fermion propagator with the rainbow-ladder truncation

Saturday, August 17, 2019 5:30 PM (20 minutes)

We solve the Minkowski-space Schwinger-Dyson equation for the fermion propagator in QED with massive photons. Specifically, we work in the quenched approximation within the rainbow-ladder truncation. Loop divergences are regularized either by the Pauli-Villars regularization or by the dimensional regularization. With moderately strong fermion-photon coupling, we find that the analytic structure of the fermion propagator consists of an on-shell pole and a branch cut both located in the timelike region. Such structures are consistent with the direct solution of the fermion propagator as functions of the complex momentum. With the fermion propagator as an input condition, our method paves the way towards the calculation of the Minkowski-space Bethe-Salpeter amplitude.

Primary author: JIA, Shaoyang (Iowa State University)

Co-authors: Prof. MARIS, Pieter (Iowa State University); Prof. FREDERICO, Tobias (Instituto Tecnológico de Aeronáutica, Sao Paulo)

Presenter: JIA, Shaoyang (Iowa State University)

Session Classification: Session 6: QCD and hadron structure

Track Classification: Session 6: QCD and hadron structure