## **XQCD 2019 (The 17th International Conference on QCD in Extreme Conditions)**



Contribution ID: 57 Type: Oral talk

## The sign problem in low dimensional QCD studied by using the path optimization

Wednesday, 26 June 2019 15:35 (25 minutes)

The sign problem, is a serious obstacle to perform the Monte Carlo simulations of QCD with finite chemical potential, is caused by the oscillation of the Boltzmann factor. To avoid this problem, we have proposed the path optimization method. In this method, we optimize the integral path in complex plain to decrease the cancellation in integral. In this talk, we explain the application of this method to gauge theory, and discuss the sign problem of low dimensional QCD.

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Session Classification: Session 11