Contribution ID: **5** Type: **not specified**

Analytic Properties of the Quark Density in QC_2D and the Sign Problem

Wednesday, 12 October 2022 10:40 (20 minutes)

Analytic dependence of the quark density on the quark chemical potential is extracted from the data simulated in lattice rergularization of QC_2D. It is shown that the cluster expansion model provides the best parametrization for analytic continuation of the quark density from imaginary to real values of the chemical potential. The problem of calculation of canonical partition functions and partial probabilities at high quark densities is discussed.

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Session Classification: LFTQCD Session