



Contribution ID: 49

Type: Poster

QCD phase diagram for finite imaginary chemical potential with HISQ fermions

Monday, 21 May 2018 18:30 (0 minutes)

The QCD phase diagram at finite temperature and density has a very rich physical structure which can be explored with first principle lattice QCD calculations.

Simulations of lattice QCD with non-vanishing real chemical potential (μ) suffer from the infamous “sign problem”. However, one can perform simulations using purely imaginary chemical potentials where the “sign problem” is absent. Using an imaginary chemical potential allows to explore the QCD phase diagram as function of $-\mu^2$.

We study the QCD phase diagram in (2+1)-flavor QCD with imaginary chemical potential keeping the strange quark mass fixed to its physical value and reducing the light quark masses towards the chiral limit. We use the HISQ action for our study as it has reduced taste splitting violation effects compared to the unimproved staggered action and hence is expected to approach the continuum limit earlier.

Primary author: GOSWAMI, Jishnu (Bielefeld University)

Co-authors: LAHIRI, Anirban (Bielefeld University); Dr SCHMIDT, Christian (Universitaet Bielefeld); Prof. KARSCH, Frithjof (Universitaet Bielefeld)

Presenter: GOSWAMI, Jishnu (Bielefeld University)

Session Classification: Poster Session