Contribution ID: **367** Type: **Talk**

Dense, magnetized, and strangeness-neutral QCD from imaginary chemical potential

Tuesday, 30 July 2024 14:25 (20 minutes)

Finite density and strong magnetic fields are expected in peripheral heavy-ion collision experiments. Moreover, global strangeness-neutrality is an important condition satisfied by the system. Therefore, in this work, we study the impact of magnetic fields on the equation of state of dense QCD in the line of strangeness-neutrality and isospin asymmetry from lattice QCD simulations at imaginary baryon chemical potential. Our simulations include 2+1+1 flavors of stout-smeared staggered fermions with masses at the physical point. To ensure strangeness neutrality, we expand in strange and charge chemical potentials around our previously tuned simulation points and extrapolate to the point of vanishing strangeness density. We study the dependence of strangeness-neutrality on the magnetic field using three values of the field strength, namely, $B = 0.3\,, 0.5\,, 0.8\,\mathrm{GeV}^2$. Our results can be used by future works to benchmark the equation of state of dense and magnetized QCD for heavy-ion phenomenology.

Primary authors: MARQUES VALOIS, Adeilton Dean (Bielefeld University); BRANDT, Bastian (University of Bielefeld); ENDRODI, Gergely (Bielefeld University); GUENTHER, Jana N. (University of Wuppertal); PETRI, Marc-André (University of Wuppertal); BORSANYI, Szabolcs (University of Wuppertal)

Presenter: MARQUES VALOIS, Adeilton Dean (Bielefeld University)

Session Classification: QCD at non-zero density

Track Classification: QCD at Non-zero Density