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# Canonical Approach for Extreme QCD

*Wednesday 1 December 2021 16:50 (30 minutes)*

In this talk, we present our recent work for a canonical approach for extreme QCD. We discuss the canonical approach for the study of QCD phase at finite densities and temperatures in the confinement phase. The canonical approach, which is a method to extrapolate observables calculated at pure imaginary chemical potentials to those at real chemical potentials, is useful to overcome the sign problem in lattice QCD simulations at finite density. To validate the applicability of the approach, we employ the Nambu-Jona-Lasinio (NJL) and Polyakov-NJL (PNJL) models where exact solutions for the number density are available, which is the basic input of the fugacity expansion and can be compared with those of the canonical approach. We find that the number densities computed from the canonical approach are consistent with the exact solutions in most of the confinement phases. The results in the present study are applicable to the study of lattice QCD.

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