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Baryon number distribution in lattice QCD

KEITARO NAGATA, KEK

Recently, Beam Energy Scan experiments have been performed at RHIC to find a first order phase transition line and expected critical endpoint on the QCD phase diagram. Higher moments of hadron multiplicity, such as skewness, kurtosis have been measured. Multiplicity of hadrons are basic quantities to obtain the moments. In this talk, we will study the canonical partition function, which are directly related to the baryon number distribution, in lattice QCD simulations with a canonical formalism. We will calculate the canonical partition function for various temperatures, and apply the Lee-Yang zero analysis to the canonical partition function.