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## Calculation of high-order cumulant with canonical ensemble method in lattice QCD

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Confinement/deconfinement phase transition is one of the most interesting subject in finite density QCD. For example, high-order cumulant of net quark number that has been observed in experiments shows a specific behavior around the phase transition line. However, sign problem caused by complex action makes it difficult to numerical calculation of it. In this study we realize the calculation of high-order cumulant with a combination of “canonical ensemble method” and hopping parameter expansion in heavy quark region. Also, we study a finite density phase transition from the specific behavior of high-order cumulants and its volume dependence.

### **On behalf of collaboration:**

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