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

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High-order cumulants are numbers characterizing the probability distribution and have a lot of physical information.
However, sign problem makes it difficult to numerical calculation of high-order cumulants in finite density lattice QCD.
In this study we realize the calculation of high-order cumulants with “canonical ensemble method” in heavy quark region.
Also, we study a finite density phase transition from the specific behavior of high-order cumulants.

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