XXIV QUARK MATTER
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Determination of charm quark diffusion parameter with improved Baysian analysis in lattice QCD

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We study the transport property of charm quarks at finite temperature in quenched lattice QCD with improved maximum entropy method (MEM).
We extend the MEM analysis to the product space of spectral functions at more than two different momenta to take advantage of more data and the strong correlation among Euclidean correlators with different momenta.
We find that this method drastically reduces the error of the reconstructed images, in particular, at small energy.
We apply this method to extract the diffusion coefficient of charm quarks.
We also perform an error estimate of the result, which has not been carried out correctly in previous analyses.
Our analysis gives finite diffusion coefficients with statistical significance and small errors.
Our method and result on the basis of first principle calculations will shed light on understanding on the dynamics of heavy quarks in QGP.

On behalf of collaboration:

None

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