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Charm quark diffusion coefficient from nonzero momentum Euclidean correlator in temporal channel

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We study the charm quark diffusion coefficient from nonzero momentum correlator in temporal channel on the quenched lattice. Euclidean correlator in temporal channel with zero momentum is constant as a function of the imaginary time because of the charge conservation. However this quantity with finite momentum is dependent on imaginary time and is more sensitive to the low energy structure of the spectral function than those in the spatial channel. We make estimates on the diffusion coefficient from this channel. We perform the numerical simulation on the lattice and apply the discussion for $1.5 < T/T_c < 4.5$.

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