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Charm quark diffusion coefficient and relaxation time on the quenched lattice

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We study the transport coefficient for the charm quark in the deconfined phase from
correlator in the temporal channel with nonzero momentum on the quenched lattice.
Lattice Euclidean correlator in the temporal channel with zero momentum is constant
as a function of the imaginary time because of the charge conservation.
However, the derivative of the correlator with respect to momentum contains information for
the diffusion coefficient and the relaxation time. We measure the derivative on the lattice and give a constraint
on the charm quark diffusion coefficient and the relaxation time on the lattice for $1.5 < T/T\_c < 4.5$.

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