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Correlation function of energy-momentum tensor in SU(3) gauge theory from gradient flow

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We study the temporal correlators of energy-momentum tensor in various channels in SU(3) gauge theory for two values of temperature $T = 1.68T_c$ and $2.24T_c$ on the lattice. The correlators are measured using energy-momentum tensor operators constructed with the gradient flow, which is found to be quite effective to reduce the statistical error. We numerically confirm that temporal correlators including a conserved charge (energy or momentum) are constants as is consistent with the energy-momentum conservation. It is also checked that these constants satisfy the linear response relations. A novel measurement of specific heat from the energy-energy correlator is performed.

Primary author: KITAZAWA, Masakiyo (Osaka University)

Co-authors: Prof. ASAKAWA, Masayuki (Osaka University); Mr IRITANI, Takumi (Kyoto University); Prof. HATSUDA, Tetsuo (Phys. Dep., Univ. Tokyo)

Presenter: KITAZAWA, Masakiyo (Osaka University)

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