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Shear viscosity of classical fields in Yang-Mills theory

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The created matter in the initial stage of relativistic heavy ion collisions is described well by the classical Yang-Mills(CYM) fields. It has been shown that the dynamics of the CYM fields play a significant role in the realization of an local thermal equilibrium. In this work, we expect that the CYM fields itself have hydrodynamical property such as transport coefficient in equilibrium. We discuss the shear viscosity of the classical fields in the CYM theory using the Green-Kubo formula. We show that the time correlation function of energy-momentum tensor in equilibrium shows a monotonous decay with an exponential form and the shear viscosity can be well evaluated by the contribution from the exponential decay.

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