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Classical and quantum shear

The structures of classical Energy-momentum tensor (EMT) are related to the ones appearing in the hadronic matrix elements of quantum EMT operator. The crossing properties of the latter allow one to establish relations between seemingly different processes.

The structures corresponding to shear viscosity contribution require (naive) T-violation in the hard exclusive hadron scattering channel described by Generalized Parton Distributions. At the same time, for annihilation channel described by Generalized Distribution Amplitudes the exotic quantum numbers are required. The perturbative estimates of the relevant objects lead to the smallness of viscosity, compatible to the holographic bound. The relation to equivalence principle and its generalization is also discussed.

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