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Energy-momentum tensor correlators in hot Yang-Mills theory

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The transport coefficients of hot QCD plasma, in particular the bulk and shear viscosities, have attracted a lot of attention in recent years. They can be defined through the infrared limits of the corresponding spectral functions, which, however, are notoriously complicated to determine non-perturbatively. In this talk, I will present recent perturbative results for the bulk and shear thermal correlators in $SU(N)$ Yang-Mills theory, computed to next-to-leading order (NLO) in the coupling. The results are used for direct comparisons with lattice and gauge/gravity predictions for Euclidean correlators as well as to verify and refine known sum rules for the quantities. In addition, we will argue that obtaining accurate information on the UV behavior of the bulk and shear spectral functions will one day aid a more precise lattice determination of the corresponding viscosities.

Primary author: ZHU, Yan (Bielefeld University)

Co-authors: VUORINEN, Aleksi (University of Bielefeld); Prof. MIKKO, Laine (Universität Bern); VEPSÄLÄINEN, Mikko (University of Helsinki); Prof. SCHRÖDER, York (Universität Bielefeld)

Presenter: ZHU, Yan (Bielefeld University)

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