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Can high-p⊥ theory and data constrain η/s?

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Understanding the temperature dependence of the viscosity-to-entropy ratio (η/s) is essential for characterizing the properties of the matter produced in ultra-relativistic heavy ion collisions at RHIC and LHC. Low-p⊥ theory and data are, however, weakly sensitive to the commonly assumed forms of the temperature dependence of η/s, especially at high temperatures. To address this, we use high-p⊥ data and theory to impose further constraints on it. Our approach, based on the study of dynamical radiative and collisional energy loss of jet particles in the medium, yields promising results in constraining the temperature dependence of η/s. This demonstrates the utility of combining low-p⊥ and high-p⊥ methods to better constrain the properties of the Quark-Gluon Plasma (QGP).

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