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## Shear and Bulk Viscosities of a Gluon Plasma in Perturbative QCD

Monday 20 February 2012 12:00 (40 minutes)

We calculate the leading order bulk viscosity \zeta of a gluon plasma in perturbative QCD with the finite angle non-collinear inelastic scatterings neglected by the previous calculation of Arnold, Dogan and Moore (ADM) included. We agree with the ADM's leading order result within errors. In contrast, our previous result on shear viscosity \eta is smaller than that of Arnold, Moore and Yaffe (AMY) by 10-20% at intermediate couplings due to finite angle scatterings. Our result shows that the gluon plasma in the perturbative region is equally conformal (with almost the same \zeta) but more perfect (with smaller \eta) than previously obtained. We also generalize our result to a general SU(N\_c) pure gauge theory and summarize the current status of the viscosity computations in QCD.

**Presenter:** Prof. CHEN, Jiunn-Wei (National Taiwan U.) **Session Classification:** Plenary - phenomenology