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## **Strong coupling calculation of hydrodynamic transport coefficients for the QGP at the crossover phase transition**

*Tuesday 29 September 2015 16:30 (2 hours)*

In this talk we use the holographic correspondence to determine for the first time the temperature dependence of 13 transport coefficients that appear in 2nd order hydrodynamics [1]. These coefficients may be relevant to determine the regime of applicability of hydrodynamics in small systems such as in pA collisions. The holographic model goes beyond the simple conformal scenario and is, thus, especially suited to describe the properties of a strongly coupled QGP near the crossover phase transition. We construct an Israel-Stewart-like theory containing these 13 temperature-dependent transport coefficients that is suitable for phenomenological applications in the context of numerical hydrodynamic simulations. We give parametrizations for the temperature dependence of all the second-order transport coefficients that appear in this theory in a format that can be easily implemented in current numerical hydrodynamic codes.

Reference:

[1] S. I. Finazzo, R. Rougemont, H. Marrochio and J. Noronha,  
“Hydrodynamic transport coefficients for the non-conformal quark-gluon plasma from holography,”  
JHEP {\bf 1502}, 051 (2015)  
[arXiv:1412.2968 [hep-ph]].

### **On behalf of collaboration:**

NONE

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