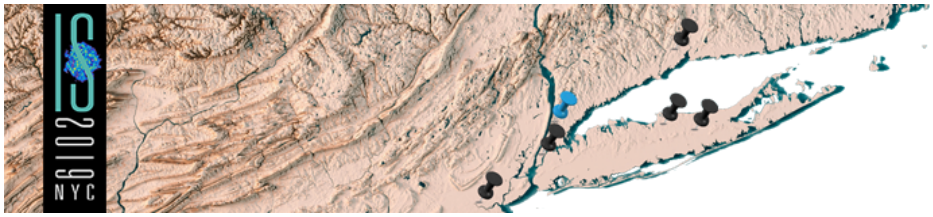

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Connecting far-from-equilibrium hydrodynamics, resummed transport coefficients, and attractor solutions

Tuesday, June 25, 2019 2:00 PM (20 minutes)

After briefly reviewing recent developments in the field, we show how far-from-equilibrium hydrodynamics may be systematically defined, for arbitrary flow profiles, in terms of a generalized tensorial expansion with transport coefficients that contain an all order resummation in gradients. We discuss how this approach naturally relates to *hydrodynamic attractor* solutions found both at weak and strong coupling. In this formulation, the transport coefficients of far-from-equilibrium fluid dynamics depend not only on the microscopic properties of the system but also on the nonlinear properties of the underlying state of the fluid itself. In contrast to previous works, no additional assumptions about the symmetries of the flow are necessary. An example of this proposal is constructed using Israel-Stewart theory and, in this case, the novel resummed transport coefficients decrease with increasing Knudsen number according to formulas that can be readily investigated in current numerical simulations of the quark-gluon plasma, which can be especially relevant to small collision systems.

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