Contribution Title:	GRAPHENE: RELATIVISTIC TRANSPORT IN A NEARLY PERFECT QUANTUM LIQUID
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The electrons and holes in a graphene sheet behave very much like a relativistic liquid. As a consequence, the properties of thermo-electric transport of this fluid of interacting Dirac fermions are quite special, being constrained by Lorentz covariance. At small doping and high temperatures, graphene exhibits many signatures of a quantum critical system: the inelastic scattering rate is set only by the temperature, and the conductivity assumes a nearly universal value, solely due to electron-hole friction. In this regime we find pronounced deviations from standard Fermi liquid behavior and a peculiar collective cyclotron resonance in the frequency dependent response. Some of these results have been anticipated by a relativistic hydrodynamic theory, and are fully confirmed by Boltzmann transport theory for weak electron-electron coupling. Interestingly, similar results are also found in the case of certain strongly coupled liquids which can be solved exactly by the AdS-CFT correspondence. In that context, it is interesting that undoped graphene turns out to be a nearly ideal fluid with an anomalously small electronic viscosity, very similar to recent observations in the ultra-relativistic quark gluon plasma. I will also discuss possible consequences of the low viscosity for turbulent electronic transport in clean graphene.