



Contribution ID: 26

Type: **not specified**

New, multipole solutions of relativistic, viscous hydrodynamics

Thursday 22 April 2021 13:00 (25 minutes)

We present a new class of exact fireball solutions of relativistic dissipative hydrodynamics. We describe new exact solutions both for the relativistic Navier-Stokes and for the Israel-Stewart theory, for arbitrary shear and bulk viscosities, as well as for other dissipative coefficients. The common property of these solutions is the presence of the relativistic Hubble flow. Our results generalize the recently found first solution in these classes, for an arbitrary temperature dependent speed of sound, shear and bulk viscosity, heat conduction and fluctuating initial temperature profiles. These solutions are causal and not only stable but also asymptotically perfect. A strong and narrow peak in the kinematic bulk viscosity is shown to imitate the effects of a first order phase transition. The new class of asymptotically perfect solutions is thus found to be very rich, but at the same time mostly academic as the solutions are limited by the spherical symmetry of the Hubble flow field.

Author: KASZA, Gábor (Eötvös Loránd University)

Presenter: KASZA, Gábor (Eötvös Loránd University)