

Multicomponent relativistic dissipative fluid dynamics from the Boltzmann equation

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We review the derivation of the fluid-dynamical equations of motion from kinetic theory. Applying this method we derive multicomponent relativistic second-order dissipative fluid dynamics from the Boltzmann equations for a reactive mixture of NS particle species with NQ intrinsic quantum numbers (e.g. electric charge, baryon number, and strangeness). The resulting transient fluid-dynamical equations are formally similar to those of a single-component system but feature different thermodynamic relations and transport coefficients, which contain the microscopic interactions of all components.

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