General Relativity and Quantum Cosmology

A causality analysis of the linearized relativistic Navier-Stokes equations

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It is shown by means of a simple analysis that the linearized system of transport equations for a relativistic, single component ideal gas at rest obeys the \textit{antecedence principle}, which is often referred to as causality principle. This task is accomplished by examining the roots of the dispersion relation for such a system. This result is important for recent experiments performed in relativistic heavy ion colliders, since it suggests that the Israel-Stewart like formalisms may be unnecessary in order to describe relativistic fluids.

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