Recent advances in hyperbolic theories of relativistic fluids

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Much effort has been devoted in order to develop a theory that describes dissipative fluid dynamics in the context of General Relativity. It is well known that much of the equations that describe those effects are of parabolic type, and thus the information propagates at infinite speed. This fact goes against the causality principles of Einstein's theory, that postulates that nothing can travel faster than speed of light. This problem makes the issue of describing dissipative fluids in the context of General Relativity a highly non-trivial task. In this talk I will present a novel theory for utrarelativistic fluids, that are invariant under conformal transformations. We show that such a theory is symmetric-hyperbolic, which implies that it has a well posed initial value problem, and study causality and stability of equillibrium states (solutions that admit killing vector fields).