Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

Relativistic fluids: fundamentals and recent developments[1] A. SANDOVAL-VILLALBAZO, Department of Physics and Mathematics, Universidad Iberoamericana, A.L. GARCÍA-PERCIANTE, Department of Applied Mathematics and Systems, Universidad Autónoma Metropolitana-Cuajimalpa — Relativistic thermodynamics and kinetic theory have been subjects of intense research and debate recently. The topic has gained attention primarily due to its application in both astrophysical and experimental scenarios. In this talk I will review some of the challenges theorists have faced in search of a successful formalism capable of describing these systems and the alternatives proposed in order to avoid the well known instabilities and causality problems present in the first works on the subject published more than fifty years ago. Among these proposals I will focus on the first order in the gradients version of relativistic kinetic theory in order to describe special relativistic single component fluids in the presence of external forces. The main results obtained following this path will be shown including the relativistic expressions for dissipative fluxes and entropy production. Some consequences of relativistic modifications in the hydrodynamic equations will also be discussed.

[1]This work is supported by CONACyT through grant CB2011/167563.

A. Sandoval-Villalbazo
Department of Physics and Mathematics, Universidad Iberoamericana

Date submitted: 01 Aug 2014 Electronic form version 1.4