19th International Conference on
QCD in Extreme Conditions (XQCD 2023)

Contribution ID: **89** Type: **Talk**

Causality and stability in first-order conformal anisotropic hydrodynamics

Friday 28 July 2023 14:50 (25 minutes)

My talk focuses on the first-order dissipative anisotropic hydrodynamic theory of a relativistic conformal uncharged fluid, which generalizes Bemfica-Disconzi-Noronha-Kovtun's (BDNK) first-order viscous fluid framework. I explain how the well-known causality problem of Navier-Stokes hydrodynamics of Landau-Lifshitz and Eckart is remedied in the BDNK approach such that the theory also maintains causality in the nonlinear regime with or without general relativity coupling. As a result of outlining the approach, I discuss how causality and stability impose constraints on the behavior of the early-time attractor by applying our newly developed first-order anisotropic theory to the Bjorken flow.

Primary authors: SPEROTTO BEMFICA, Fábio (Universidade Federal do Rio Grande do Norte); SHOKRI, Masoud (Goethe University, ITP); Dr MARTINEZ GUERRERO, Mauricio (North Caroline State University)

Presenter: SHOKRI, Masoud (Goethe University, ITP)

Session Classification: Parallel session B