Contribution ID: **198** Type: **not specified**

Damping of Pseudo-Goldstone Fields from Schwinger-Keldysh Effective Field Theory

Wednesday 11 January 2023 17:20 (30 minutes)

Approximate symmetries abound in Nature. If these symmetries are also spontaneously broken, the would-be Goldstone modes acquire a small mass, or inverse correlation length, and are referred to as pseudo-Goldstones. At nonzero temperature, the effects of dissipation can be captured by hydrodynamics at sufficiently long scales compared to the local equilibrium. In this talk we will explain how the framework of Schwinger-Keldysh effective actions for hydrodynamics allows us to show that the damping of pseudo-Goldstones is completely determined by their mass and diffusive transport coefficients. We will also discuss how we can use a simple holographic model in order to derive such Schwinger-Keldysh effective actions for the hydrodynamics of broken symmetries.

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Session Classification: 30’ Contribution