Contribution ID: **30**   Type: **not specified**

Exact form of currents at global equilibrium with rotation and acceleration for free massless fermions

Thursday, 16 March 2023 10:00 (20 minutes)

The exact form of the Wigner function of massless particles for the free Dirac field at general global thermodynamic equilibrium with rotation and acceleration can be obtained by means of an iterative solution for the two-point function in momentum space followed by a suitable analytic continuation. The latter requires a newly proposed operation on complex functions dubbed as analytic distillation. The obtained mean values of the stress-energy tensor, vector and axial currents for the massless Dirac field are in agreement with known analytic results in the special cases of pure acceleration and pure rotation. By using this approach, we obtain new expressions of the currents for the more general case of combined rotation and acceleration and, in the pure acceleration case, we demonstrate that they must vanish at the Unruh temperature. The significance of these results for a general derivation of the entropy current is addressed.

Presenter: BECATTINI, Francesco (Università & INFN Firenze)

Session Classification: Spin and near critical Hydrodynamics- I