ID de Contribution: **16** Type: **Non spécifié**

Anomalous Luttinger relation for energy transport: From black hole's atmosphere to thermal quenches

mercredi 1 juin 2022 14:45 (45 minutes)

The idea that heat has weight led Tolman and Ehrenfest, and later Luttinger, to establish a deep, but classical, connection between gravitational fields and thermal transport. However, gravitational anomalies can introduce additional quantum energy scales, suggesting that their celebrated results can break down at the quantum level.
In this work we establish the extent to which anomalies correct the Tolman-Ehrenfest and Luttinger relations, and their effect on thermal transport calculations. Our results reveal that gravitational anomalies are observable in flat-space time when the local temperature varies strongly. This condition maps to regions where the space-time curvature is sizable, including those defining the quantum atmosphere of a black-hole.
These observations establish how the trace and gravitational anomalies manifest in non-linear thermal transport, propagating energy waves following a thermal quench, or the energy density of heating Floquet states induced by repeated thermal quenches. Our results offer a systematic way to find examples where to explore gravitational anomalies in flat-space time.

Auteur principal: BERMOND, Baptiste

Orateur: BERMOND, Baptiste