Avenues of Quantum Field Theory In Curved Spacetime 2025

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Emergent thermal space-time in rotating systems

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In this talk, I first summarize how systems at local thermal equilibrium are described by the partition function of the underlying QFT in a fictitious curved space-time constructed with the hydrodynamic fields [1]. I list how this duality has been used to study systems at thermal equilibrium in the presence of acceleration and rotation. In particular, I show how this helps to describe systems with macroscopic spin properties and to resolve the ambiguities related to the definition of a spin tensor [2]. Finally, I discuss how the spin-rotation coupling of a particle differs in a actual rotational space-time and in a rotating medium [3].

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M. Crossley, P. Glorioso and H. Liu, JHEP 09 (2017) 095;
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Primary author: BUZZEGOLI, Matteo (West University of Timisoara)

Presenter: BUZZEGOLI, Matteo (West University of Timisoara)