



Contribution ID: 274

Type: **Talk**

Ambient temperature versus ambient acceleration in the circular motion Unruh effect

Friday 27 June 2025 14:40 (15 minutes)

The Unruh effect asserts that the experience of uniformly linearly accelerated observer with proper acceleration a is indistinguishable from that of a static observer in a thermal bath whose temperature is given by $T=a/(2\pi)$. This prediction of Minkowski quantum field theory continues to inspire both theoretical and experimental investigations. More generally, non-inertial trajectories—such as circular or drifted Rindler motion—yield a nonzero response to the vacuum, though the response is typically not thermal. In this talk, I examine the interplay between acceleration and ambient temperature by considering two scenarios: (i) a circularly orbiting observer in a thermal bath, and (ii) a circular trajectory around a uniformly accelerated path. These setups allow for a probe of the Unruh effect's robustness under deviations from uniform acceleration. This work is based on Phys. Rev. D 109, 065001 (2024).

Author: BUNNEY, Cameron (University of Nottingham)

Presenter: BUNNEY, Cameron (University of Nottingham)

Session Classification: Friday Parallel Session C