Speaker: Celia ANTENEODO (Puc Rio de Janeiro, Brasil)

Title: **Non-normalizable quasi-equilibrium states**

Abstract

Non-confining potentials are ubiquitous in nature, from the hydrogen atom to gravitational fields. In a thermal environment, the flatness of a potential prevents the system from reaching equilibrium and leads to a divergent partition function. For Brownian particles subject to a potential well that is asymptotically flat, when the temperature is small enough compared to the trap depth, there exists a range of timescales over which physical observables remain practically constant. This range can be very long, of the order of the Arrhenius factor. We show that, for these quasi-equilibrium states, the standard Boltzmann-Gibbs framework can still be applied, through proper regularization.

Refs.: Entropy 23, 131 (2021); Phys. Rev. Research. 2, 043088 (2020).