

DY 21: Invited Talk

Time: Tuesday 9:30–10:00

Location: HÜL 186

Invited Talk

DY 21.1 Tue 9:30 HÜL 186

From Non-normalizable Boltzmann-Gibbs statistics to infinite-ergodic theory — ●ELI BARKAI — Physics Department, Bar-Ilan University, Ramat-Gan, Israel

We consider a single particle coupled to a thermal heat bath, when the system approaches in the long time limit a non-normalised Boltzmann state. This could be a particle interacting with a wall, the force

field falling off faster than one over the particle-wall distance. We show how infinite ergodic theory is a useful tool, the infinite invariant measure (the non-normalised state) is given by Boltzmann-Gibbs theory. Time averages of integrable observables are described by the Aaronson-Darling-Kac theorem. We derive our main results using an entropy maximum principle, and discuss the virial theorem when Boltzmann-Gibbs measure is non-normalisable.