

Paulo Ruffino
IMECC-Unicamp

Title: A family of rotation numbers for discrete random dynamics on the circle

Abstract:

We revisit the problem of well-defining rotation numbers for discrete random dynamical systems on the circle. We show that, contrasting with deterministic systems, the topological (i.e. based on Poincaré lifts) approach does depend on the choice of lifts (e.g. continuously for nonatomic randomness). Furthermore, the winding orbit rotation number does not agree with the topological rotation number. Existence and conversion formulae between these distinct numbers are presented. Finally, we prove a sampling in time theorem which recovers the rotation number of continuous Stratonovich stochastic dynamical systems on S^1 out of its time discretisation of the flow.