



Workshop on Stochastic Analysis

IMECC - Unicamp

From August 10th to 13th, 2026



Stefania Ugolini
(Università degli Studi, Milano)

Entropy chaos on path space

Abstract

A criterion for proving a strong form of propagation of chaos on the path space, known as entropy chaos, for a general interacting diffusion system is proposed. Our analysis focuses on the class of conservative diffusions introduced by Carlen, which are characterized by infinitesimal characteristic pairs, that is, a time-marginal probability density and a current velocity field. A key property of this broad class is that the processes remain diffusions under time-reversal. We prove that, given a suitable bound on the relative entropy (with respect to the Wiener measure) and the weak convergence of both drifts and fixed-time marginal densities, strong entropy chaos at the process level is achieved in the infinite particle limit, provided the limit drift satisfies a specific regularity condition. This stochastic framework encompasses various singular interacting particle systems and their related asymptotic scenarios.