ROBERTO CORTEZ, Universidad de Valparaíso

Uniform propagation of chaos for the spatially homogeneous Boltzmann equation

The spatially homogeneous Boltzmann equation models the evolution of the velocity distribution of a huge number of particles in a gas, subjected to elastic random binary collisions. In this work we study its corresponding finite stochastic N-particle system, and we are interested in the propagation of chaos property: the convergence, as $N \to \infty$ and for each time $t \geq 0$, of the empirical measure of the system towards the solution of the Boltzmann equation. Using recent probabilistic coupling techniques we find, under suitable moments assumptions on the initial distribution, an explicit uniform-in-time propagation of chaos rate of order almost $N^{-1/3}$ in squared 2-Wasserstein distance for the Boltzmann equation in the Maxwell molecules case.