

Vitalii Konarovskiy

**On the existence and uniqueness of solutions to the
Dean-Kawasaki equation**

Abstract

We consider the Dean-Kawasaki equation with smooth drift interaction potential and show that measure-valued martingale solutions exist only in certain parameter regimes in which case they are given by finite Langevin particle systems with mean-field interaction. The proof is based on the Girsanov transform and log-Laplace duality. This is joint work with Max von Renesse and Tobias Lehmann.