

First Joint Meeting Brazil Italy of Mathematics
Special Session: PDE methods in mean field games and
dynamics optimization

Rio de Janeiro, August 29 - September 02, 2016

Title: Short time regularity of Mean-Field games with congestion

Authors: Vardan Voskanyan (Saudi Arabia)

Abstract: We consider time-dependent mean-field games with congestion that are given by a system of a Hamilton-Jacobi equation coupled with a Fokker-Planck equation. These models are motivated by crowd dynamics where agents have difficulty moving in high-density areas. The congestion effects make the Hamilton-Jacobi equation singular. The existence of classical solutions to this problem, was only known in very special cases - stationary problems with quadratic Hamiltonians and some time-dependent explicit examples. Here, we prove short-time existence of smooth solutions in the case of sub-quadratic Hamiltonians.