Numerical approximations of nonlocal Mean Field Games

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Abstract

I will discuss the numerical approximation of a class of mean field game equations (coupled system of PDEs consisting Hamilton-Jacobi-Bellman and Fokker-Planck equations) with *nonlocal diffusion*. The problem may include degenerate diffusion and our scheme is based on semi-Lagrangian approximation of the underlying control problem/ games. The prescribed schemes are monotone, stable and consistent. I will discuss the convergence results along subsequences for degenerate equations in one space dimension and also for nondegenerate equations in arbitrary dimensions.