Abstract: "Interplay Between the Nonlinear and Nonlocal Components of Diffusions Driven by Levy processes"

One of the motivations of our program was to develop understanding of the interplay between the nonlinear and nonlocal components in evolution equation driven by the infinitesimal generators of stochastic processes with jumps, such as Levy processes and flights. In particular, we also studied probabilistic approximations (propagation of chaos) for several extensions of the classical quasilinear and strongly linear PDEs, including the conservation laws, porous medium and Hamilton-Jacobi equations, and reaction-diffusion type equations for Darwinian evolutionary population models where the hydrodynamic limits may still preserve some "background" random noise.