Recycling Ishii-Lions method for nonlocal problems

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In this talk, I will report some results on regularity for fractional elliptic equations where the celebrated Ishii-Lions method(JDE'90) has been employed through suitable modifications. We start discussing the original argument introduced in the early nineties, and the nonlocal analog proposed by Barles, Chasseigne and Imbert (JEMS'11). Following this last approach, our main contributions are a) Lipschitz regularity for unbounded solutions for fractional Hamilton-Jacobi equations; b) Liouville-type results for general fractional Hamilton-Jacobi, and reaction diffusion equations; and c) Lipshitz estimates for the (variational) fractional p-Laplacian. Joint work with Anup Biswas (IISER-Pune, India) and Alexander Quaas (UTFSM, Chile)