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Existence and uniqueness of viscosity solutions for second order integro-differential equations without monotonicity condition

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In this talk, we discuss a new existence and uniqueness result of a continuous viscosity solution for integro-partial differential equation (IPDE in short).

The novelty is that we relax the so-called monotonicity assumption on the driver which is classically assumed in the literature of viscosity solution of equation with a non local term. Our method is based on the link of those IPDEs with backward stochastic differential equations (BSDEs in short) with jumps for which we already know that the solution exists and is unique.

References:

- 1 Alvarez, O., Tourin, A. Viscosity solutions of nonlinear integro-differential equations, *Annales de l'Institut Henri Poincaré. Analyse non linéaire*, Elsevier 13(3), pp. 293-317, 1996.
- 2 Barles, G., Buckdahn R and Pardoux E., Backward stochastic differential equations and integral-partial differential equations, *Stochastics: An International Journal of Probability and Stochastic Processes*, 60, 57-83, 1997.
- 3 Barles, G. and Imbert, C., Second-Order Elliptic Integro-Differential Equations : Viscosity Solutions' Theory Revisited, *Ann. Inst. H. Poincaré- Anal. Non Linéaire* 25(3): 567-585, 2008.
- 4 Dumetrescu R., Quenez M.-C., Sulem A., Reflected BSDEs with jumps and partial integro-differential variational inequalities, *Research Report No 8213, Project-Teams Mathrisk (2013)*.
- 5 Hamadène S., Ouknine Y., Reflected backward stochastic differential equation with jumps and random obstacle, *Electron. J. Probab.*, 8: 2 - 20, 2003.
- 6 Harraj N., Ouknine Y. and Turpin I., Double barriers Reflected BSDEs with jumps and viscosity solutions of parabolic Integro-differential PDEs, *Journal of Applied Mathematics and Stochastic Analysis*, 1: 37-53, 2005.
- 7 Tang, S.J. and Li, X.J., Necessary conditions for optimal control of stochastic systems with random jumps, *SIAM J. Control Optim.* 32: 1447-1475, 1994.

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