

On the Optimal Stopping Problems for Levy Processes

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Value functions of optimal stopping problems for processes with Levy jumps are known to be generalized solutions of variational inequalities. Assuming the diffusion component of the process is nondegenerate, in my two talks I will show that the value function is a classical solution of the variational inequality in the continuation region for problems with either finite or infinite variation jumps. Moreover, the smooth-fit property is shown via the global regularity of the value function.

Our global regularity results generalize the results of Bensoussan and Lions (1984) which were developed for bounded domains. On the other hand, until now the value function was known to be $C^{2,1}$ only for the optimal stopping problems when the jumps have finite activity.

This is a joint work with my Ph.D. student Hao Xing.