



Minisymposium 3 - Stochastic Processes with Jumps: Theory and applications

Heat Kernel Estimates for Jump Processes of Mixed Types on Metric Measure Spaces

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Alfors d -regular set is a class of fractal sets which contains geometrically self-similar sets. In this talk, we will discuss recent progress on the study of symmetric jump-type processes of mixed type on a class of metric measure spaces that include d -regular sets. A typical example is the symmetric jump process with jumping intensity

$$\int_{\alpha_1}^{\alpha_2} \frac{c(\alpha, x, y)}{|x - y|^{d+\alpha}} \nu(d\alpha),$$

where ν is a probability measure on $[\alpha_1, \alpha_2] \subset (0, 2)$, and $c(\alpha, x, y)$ is a jointly measurable function that is symmetric in (x, y) and is bounded between two positive constants.

Results on parabolic Harnack principle and sharp two-sided heat kernel estimate for such jump-type processes will be presented. Two sided heat kernel estimates for jump processes with exponential decaying jumping measure will also be given. A typical example is the symmetric jump process with jumping intensity

$$e^{-c|x-y|} \int_{\alpha_1}^{\alpha_2} \frac{c(\alpha, x, y)}{|x - y|^{d+\alpha}} \nu(d\alpha),$$

which in particular includes the relativistic stable processes of mixed type.