KERNEL ESTIMATES FOR A CLASS OF FRACTIONAL KOLMOGOROV OPERATORS

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Abstract

In this talk I will present some recent results obtained in collaboration with Marianna Porfido and Cristian Tacelli.

We consider a measure space (X, μ) with σ-finite measure μ and a non-negative self-adjoint operator A on $L^2(\mu)$ such that $-A$ generates a symmetric Markov semigroup. In addition to the semigroup property and the strong continuity, a symmetric Markov semigroup is a family of positive preserving operators acting on bounded measurable functions, which preserve constant functions and are symmetric on L^2. We prove pointwise bounds for the kernel associated to the fractional operator $-A^\alpha$ for $0 < \alpha < 1$. The main tools are weighted Nash inequalities. Finally, we illustrate our results in concrete examples.

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