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Title

Lp-estimates for nonlocal in time heat kernels

Abstract:

In [1] and [2], the authors study independently the so called fully nonlocal diffusion equation, which is of fractional order both in space and time. In both papers, the authors need several technical results about the so-called Mittag-Leffler functions and Fox H-functions to obtain Lp-estimates of the solutions. This approach seems not to be very helpful (or easy) to derive the Lp-estimates of solutions to equations with other nonlocal in time operators (for example sums of fractional derivatives). In this talk, we present a method to obtain Lp-estimates of fundamental solutions of more general nonlocal diffusion equations.

References

[1] K. Kim and S. Lim, Asymptotic behaviors of fundamental solution and its derivatives to fractional diffusion-wave equations, J. Korean Math. Soc. 53 (2016), no. 4, 929–967.
[2] J. Kemppainen, J. Siljander, and R. Zacher. Representation of solutions and large-time behavior for fully nonlocal diffusion equations. J. Differential Equations, 263(1):149-201, 2017.

June 04, 2018, 5.00. pm
Sala de Seminarios Felipe Álvarez Daziano 5to piso del DIM, U de Chile, Beauchef 851.

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