

**FRACTIONAL DECAY BOUNDS FOR NONLOCAL ZERO
ORDER HEAT EQUATIONS.**

Julio D. Rossi*

- Dep. Mathematics, FCEyN
Buenos Aires University
Ciudad Universitaria Pab 1, 1428,
Buenos Aires, Argentina
jrossi@dm.uba.ar, <http://mate.dm.uba.ar/~jrossi>

ABSTRACT

Based in a joint work with E. Chasseigne, P. Felmer and E. Topp, we obtain bounds for the decay rate for solutions to the nonlocal problem

$$u_t(t,x) = \int_{\mathbb{R}^n} J(x,y)[u(t,y) - u(t,x)] dy.$$

Here we deal with bounded kernels J but with polynomial tails, that is, we assume a lower bound of the form

$$J(x,y) \geq c_1 |x-y|^{-(n+2\sigma)}, \quad \text{for } |x-y| \geq c_2.$$

Our estimates takes the form

$$\|u(t)\|_{L^q(\mathbb{R}^n)} \leq C t^{-\frac{n}{2\sigma}} (1 - \frac{1}{q}) \quad \text{for } t \text{ large.}$$

These estimates extend those of [1], [2] and [3].

REFERENCES

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