1107-35-117 **Wenxiong Chen**, **Lorenzo D' Ambrosio** and **Yan Li*** (`yali3@mail.yu.edu`), 500 West 185th Street, New York, NY 10033. *Some Liouville theorems for the fractional Laplacian.*

In this paper, we prove the following result. Let α be any real number between 0 and 2. Assume that u is a solution of

$$\begin{cases} (-\Delta)^{\alpha/2}u(x) = 0, & x \in \mathbb{R}^n, \\ \varliminf\limits_{|x|\to\infty} \dfrac{u(x)}{|x|^\gamma} \geq 0, \end{cases}$$

for some $0 \leq \gamma \leq 1$ and $\gamma < \alpha$. Then u must be constant throughout $\mathbb{R}^n$.

This is a Liouville Theorem for α-harmonic functions under a much weaker condition.

For this theorem we have two different proofs by using two different methods: One is a direct approach using potential theory. The other is by Fourier analysis as a corollary of the fact that the only α-harmonic functions are affine. (Received January 08, 2015)