1015-35-280   **Luis E Silvestre*** (`luis.silvestre@cims.nyu.edu`), Courant Institute of Mathematical Sciencies, New York University, New York, NY 10012. *Obtaining the fractional Laplacian from a local PDE.*

It is well known that the square root of the Laplacian can be obtained as the operator that maps the Dirichlet to the Neumann condition for the Laplace equation in the upper half space. We obtain a similar characterization for any power of the Laplacian modifying slightly the equation. This allows to apply the methods of the Signorini problem to the obstacle problem for the fractional Laplacian. This is a joint work with Luis Caffarelli. (Received February 07, 2006)