

*NOTE CHANGED DATE AND TIME:*

**DIFFERENTIAL GEOMETRY/PDE SEMINAR**

THURSDAY, JANUARY 22, 2009

PADEFORD C-36

11:00–12:00AM

Fully nonlinear integro-differential equations

**Luis Silvestre**

(University of Chicago)

We study nonlinear integro-differential equations. Typical examples are the ones that arise from stochastic control problems with discontinuous Levy processes. We can think of these as nonlinear equations of fractional order. Indeed, second order elliptic PDEs are limit cases for integro-differential equations. Our aim is to extend the theory of fully nonlinear elliptic equations to this class of equations. We are able to obtain a result analogous to the Alexandroff estimate, Harnack inequality and  $C^{1,\alpha}$  regularity. As the order of the equation approaches two, in the limit our estimates become the usual regularity estimates for second order elliptic PDEs. This is a joint work with Luis Caffarelli.

For more information about this seminar, visit the DG/PDE Seminar Web page (from the Math Department home page, [www.math.washington.edu](http://www.math.washington.edu), follow the link **Seminars, Colloquia, and Conferences**).

The University of Washington is committed to providing access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodation contact the Disability Services Office at least ten days in advance at: 206.543.6450/V, 206.543.6452/TTY, 206.685.7264 (FAX), or e-mail at

dso@u.washington.edu.