

Curriculum Vitae

Luis E. Silvestre

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Personal Information

Born: May 14, 1977
Citizenship: Argentinian

Education

Ph.D. Mathematics May 2005
University of Texas, Austin, TX
Advisor: Prof. Luis Caffarelli

Licenciado en Matematica December 2000
Universidad Nacional de La Plata, La Plata, Argentina.

Work Experience

Teaching Assistantship 2000 and 2001.
Universidad Nacional de La Plata. La Plata. Argentina.

Teaching Assistantship Fall 2001, Fall 2002 and Spring 2003.
University of Texas at Austin. Austin, TX.

Graduate Research Assistantship Fall 2003 and Fall 2004.
University of Texas at Austin. Austin, TX.

Courant Instructor Fall 2005 - August 31st 2008
Courant Institute. New York University. New York, NY.

Assistant Professor September 2008 - present
University of Chicago. Chicago, IL.

Fellowships and Grants

- Bernardo A. Houssay scholarship for high school students 1994 and 1995
- FOMEC scholarship at Universidad Nacional de La Plata 1997, 1998 and 1999
- David Bruton jr. Fellowship at UT Austin Fall 2001, Spring 2002 and Fall 2003
- Sid Richardson Foundation Regents Fellowship at UT Austin Summer 2002
- Edward and Alice Dodd Fellowship at UT Austin Spring 2004
- Graduate Continuing Fellowship at UT Austin Fall 2004 and Spring 2005
- Liftoff Fellowship from the Clay Mathematics Institute. Summer 2005
- NSF Research grant DMS-0701016 June 2007 - May 2010
- Sloan Research Fellowship 2009 - 2011

Awards

- Silver Medal, International Mathematical Olympiad 1993 and 1994
- Gold Medal, Iberoamerican Mathematical Olympiad 1993
- National Champion, Argentinian Mathematical Olympiad 1993 and 1994
- First Prize in the Paenza Mathematical Contest 1995, 1997, 1998 and 1999

Publications

1. *Smooth approximations to solutions of nonconvex fully nonlinear elliptic equations.* L. Caffarelli and L. Silvestre. Submitted.
2. *On the Evans-Krylov theorem.* L. Caffarelli and L. Silvestre. To appear in the Proceedings of the American Mathematical Society.
3. *The Evans-Krylov theorem for non local fully non linear equations.* L. Caffarelli and L. Silvestre. Submitted.
4. *Regularity results for nonlocal equations by approximation* L. Caffarelli and L. Silvestre. Submitted.
5. *Eventual regularization in the slightly supercritical quasi-geostrophic equation* Submitted.
6. *The Dirichlet Problem for the Convex Envelope* A. Oberman and L. Silvestre. Submitted.
7. *Regularity theory for fully nonlinear integro-differential equations.* L. Caffarelli and L. Silvestre. Communications on Pure and Applied Mathematics. 62 (2009) Issue 5, 597–638.
8. *A characterization of optimal two-phase multifunctional composite designs.* L. Silvestre. Proc. of the Royal Soc. of London A 463, Number 2086 (2007).
9. *Regularity estimates for the solution and the free boundary to the obstacle problem for the fractional Laplacian.* L. Caffarelli, S. Salsa and L. Silvestre. Inventiones Mathematicae. 171, Number 2 (2008).
10. *Regularity for the nonlinear Signorini problem.* E. Milakis and L. E. Silvestre. Advances in Mathematics. 217, Issue 3 (2008).
11. *An extension problem related to the fractional laplacian.* L. A. Caffarelli and L. E. Silvestre. Communications in Partial Differential Equations, 32 (2007) 8, 1245.
12. *Regularity of the obstacle problem for a fractional power of the laplace operator.* L. E. Silvestre. Communications on Pure and Applied Mathematics. 60 (2007), no. 1, 67–112.
13. *Issues in homogenization for problems with nondivergence structure.* L. A. Caffarelli and L. E. Silvestre. Calculus of variations and nonlinear partial differential equations, 43–74, Lecture Notes in Math., 1927, Springer, Berlin, 2008.
14. *Hölder estimates for solutions of integro differential equations like the fractional laplace.* L. E. Silvestre. Indiana University Mathematical Journal 55 (2006), 1155–1174.
15. *Regularity for fully nonlinear elliptic equations with Neumann boundary data.* E. Milakis and L. E. Silvestre. Communications in Partial Differential Equations 31 (2006), No. 8
16. *The two membranes problem.* L. E. Silvestre. Communications in Partial Differential Equations 30 (2005), no. 1-3, 245–257
17. *Weak Matrix Majorization.* F. D. Martínez Pería, P. Massey and L. E. Silvestre. Linear Algebra Appl. 403 (2005), 343–368.

Invited Talks

- *The obstacle problem for an integro differential operator.* Analysis seminar. Massachusetts Institute of Technology. November 2004, Cambridge, MA.
- *The obstacle problem for the fractional Laplacian.* Analysis seminar. Royal Institute of Technology (KTH). March 2005. Stockholm, Sweden.
- *The obstacle problem for the fractional Laplacian.* Free Boundary Problems. Theory and Applications. Focus session in obstacle type problems. June 2005, Coimbra, Portugal.
- *On the regularity of minimizers for a variational problem with a singular term.* Seminario di calcolo delle variazioni ed equazioni differenziali. Politecnico di Milano. June 2005. Milan, Italy.
- *The obstacle problem for the fractional Laplacian.* Geometric Analysis seminar. Princeton University. October 2005. Princeton, NJ.

- *Holder estimates for integro-differential operators with rough coefficients.* PDE seminar. Purdue University. October 2005. West Lafayette, IN.
- *Regularity for a singular variational problem.* PDE seminar. Brown University. October 2005. Providence, RI.
- *Obtaining the fractional Laplacian from a local PDE.* Geometry/Analysis Seminar. Columbia University. February 23, 2006. New York, NY.
- *Obtaining the fractional Laplacian from a local PDE.* 2006 AMS Spring Southeastern Meeting. Special Session on Singular Integrals, Geometric Analysis, and Free Boundary Problems. April 1, 2006. Miami, FL.
- *The fractional laplacian and lower dimensional obstacle problems.* PDE Seminar. University of Texas at Austin. August 2006. Austin, TX.
- *Lower dimensional obstacle problems.* 2006 AMS Fall Eastern Section Meeting Storrs, CT, October, 2006.
- *The obstacle problem for integro-differential equations.* International Conference on Partial Differential Equations and Applications. Beijing Normal University. June 2007, Beijing, China.
- *A characterization of optimal multifunctional composite designs.* PDE seminar. East China Normal University. June 2007, Shanghai, China.
- *A problem of optimal design of composites.* Rutgers University. September 18, 2007. Piscataway, NJ.
- *Regularity results for nonlocal elliptic equations.* Geometric Analysis seminar. Princeton University. October 5th, 2007. Princeton, NJ.
- *Some General Results In Nonlinear Integro-Differential Equations* Colloquium. Kansas State University. November 1st, 2007. Manhattan, KS.
- *Lower dimensional obstacle problems and the fractional Laplacian.* Prairie Analysis Seminar. November 2nd, 2007. Manhattan, KS.
- *Fully nonlinear integro-differential equations.* PDE Seminar. Massachusetts Institute of Technology. February 2008, Cambridge, MA.
- *Some regularity results for integro-differential equations.* Recent Trends in Nonlocal Operators and Applications. April 2008. Banff, Canada.
- *Regularity results for the obstacle problem for the fractional Laplacian using thin obstacle problems.* Free Boundary Problems. Theory and Applications. Focus session on Regularity of free boundaries. June 2008. Stockholm, Sweden.
- *Ecuaciones íntegro-diferenciales no lineales* PDE seminar. Universidad de Buenos Aires. July 2008. Argentina.
- *Regularity results for nonlocal equations.* Workshop on Geometric PDEs. Institute for Advance Studies. February 2009. Princeton, NJ.

Other

- Refereed articles for *Communications in Partial Differential Equations*, *Mathematical Research Letters*, *Inventiones Mathematicae*, *Michigan Mathematical Journal*, *Journal of the European Mathematical Society*, *Bulletin of the Iranian Mathematical Society*, *Duke Mathematical Journal*, *Journal Mathematiques Pures et Appliquees* and *The Journal of Geometric Analysis*.