

Daniela De Silva

Curriculum Vitae

Appointments

Barnard College, Columbia University, Term Assistant Professor, August 2007 –
Johns Hopkins University, J.J. Sylvester Assistant Professor, January 2006 – July 2007
Mathematical Sciences Research Institute, Postdoctoral Fellow, Fall 2005

Education

Massachusetts Institute of Technology, Ph.D in Mathematics, June 2005 – Thesis advisor:
David Jerison
Massachusetts Institute of Technology, Visiting student, 2000/2001
University of Naples “Federico II”, B.A. Summa cum Laude in Mathematics, November
1997 – Senior thesis advisor: Angelo Alvino

Research fellowships

Doctoral fellowship at the University of Naples “Federico II”, 1998–2000
I.N.d.A.M. fellowship at the University of Naples “Federico II”, 1998

Research interests

Partial Differential Equations, Harmonic Analysis.

Papers/Publications

1. *Some remarks on nonlinear elliptic equations and applications to Hamilton-Jacobi equations*, (with C. Trombetti), C.R. Acad. Sci. Paris, t. 333, Serie I, p. 91-96, 2001
2. *Estimates for the gradient of solutions of elliptic equations in Orlicz-Sobolev spaces*, Ricerche di Matematica, vol. LI, issue 1, p. 25-47, 2002
3. *Global well-posedness for a periodic nonlinear Schrödinger equation in 1D and 2D*, (with N. Pavlovic, G. Staffilani and N. Tzirakis) Discrete and Continuous Dynamical Systems, Vol. 19 (2007), n. 1, 37–65.
4. *Global well-posedness for the L^2 -critical nonlinear Schrödinger equation in higher dimensions*, (with N. Pavlovic, G. Staffilani and N. Tzirakis) CPAA, Vol. 6 (2007), n.4, 1023–1041.
5. *Global well-posedness and polynomial bounds for the defocusing L^2 -critical nonlinear Schrödinger equation in \mathbf{R}* , (with N. Pavlovic, G. Staffilani and N. Tzirakis) Comm. in PDE. Vol. 33 (2008), n. 8, 1395-1429(35)
6. *Low regularity solutions for a 2D quadratic non-linear Schrödinger equation*, (with I. Bejenaru) to appear in Trans. of AMS

7. *Existence and regularity of monotone solutions to free boundary problems*, to appear in Amer. J. Math.
8. *A singular energy minimizing free boundary*, (with D. Jerison) to appear in J. Reine Angew. Math.
9. *Symmetry of global solutions to a class of fully nonlinear elliptic equations in 2D*, (with O. Savin) to appear in Indiana Univ. Math. J.
10. *Bernstein-type techniques for 2D free boundary graphs*, to appear in Math. Z.
11. *Radial graphs of constant mean curvature in the Hyperbolic space*, (with J. Spruck) to appear in Calculus of Variations and PDEs.
12. *Minimizers of convex functionals arising in random surfaces*, (with O. Savin) submitted, arXiv:0809.3816v1.
13. *A fully nonlinear problem with free boundary in the plane*, (with E. Valdinoci) submitted, arXiv:0811.1476.
14. *Gradient bound for energy minimizing free boundary graphs*, (with D. Jerison), under revision.
15. *A free boundary problem for water-waves with vorticity*, in preparation.

Seminars/Conferences

Summer 2008

PDE Seminar, University of Rome "Tor Vergata"

Spring 2008

PDE Seminar, UT Austin

Spring 2007

JAMI Conference on Nonlinear dispersive equations

Fall 2006

Conference on Geometric Analysis and Non-linear Elliptic PDEs (in honor of J. Spruck's 60th birthday)

Geometry and Analysis Seminar, Columbia University

Canadian Mathematical Society, Winter Meeting 2006, Special session on Schrödinger equations

Spring 2006

PDE Seminar, Purdue University

Fall 2005

Analysis Seminar, UCLA

Mathematical Sciences Research Institute, Program in Nonlinear Dispersive Equations

Canadian Mathematical Society, Winter Meeting 2005, Special session on Free Boundary problems

Spring 2005

Analysis Seminar/PDE, MIT
PDE Seminar, Purdue University
PDE Seminar, Brown University

Fall 2004

Analysis Seminar, Princeton University
Analysis Seminar, Courant Institute
Analysis/PDE Seminar, Johns Hopkins University

Teaching experience

BARNARD COLLEGE, COLUMBIA UNIVERSITY– Fall 2007/Spring 2008/Fall 2008, Instructor for the following classes:

- *Partial Differential Equations.*
- *Calculus II.*
- *Undergraduate Seminars.*

JOHNS HOPKINS UNIVERSITY– Spring 2006/Fall 2006/Spring 2007, Instructor and course coordinator for the following classes:

- *Introduction to the calculus of variations.*
- *Analysis I.*
- *Calculus II.*
- *Ordinary differential equations.*

MIT– Fall 2003/Spring 2004/IAP January 2005, Teaching Assistant for the following classes:

- *Calculus 18.02.*
- *Calculus 18.022.*

Other activities

Seminar organizer for the program in Nonlinear Dispersive Equations at MSRI.

Referee for several Mathematics Journals.

Member of the committee for Graduate Board Oral (GBO) exams at the Johns Hopkins University.

Member of the Prize Exam committee at Barnard College, Columbia University.

Personal information

Barnard College, Columbia University

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