

Curriculum Vitae

CRISTINA CAPUTO

Research Interests

Partial Differential Equations, Geometric Analysis, Calculus of Variations

Education

Columbia University, New York, USA

Ph.D. Mathematics (awarded of distinction), October 2006

Thesis: *On Highly Degenerate Surfaces Evolving by the Harmonic Mean Curvature Flow*

Thesis advisor: Prof. Panagiota Daskalopoulos

M. Phil., Mathematics, Columbia University, October 2004

M. Arts, Mathematics, Columbia University, February 2003

University of Bari, Bari, Italy

Bachelor degree in Mathematics (Magna Cum Laude) March 2001

Thesis (in Italian): *Sulle Disuguaglianze di Sobolev Migliorate*

(*On Improved Sobolev Inequalities*)

Thesis advisor: Prof. Enrico Jannelli

Appointments

Assistant Professor University of Arkansas, Fall 2010-

Fellow MSRI, Spring 2011 (on leave from UofA)

Instructor-Researcher, University of Texas at Austin, Fall 2006–Spring 2010

Postdoctoral Fellow, MSRI (on leave from UT, Austin), Fall 2006–Spring 2007

Visiting positions

Albert Einstein Institute, Max Planck Institute, Golm, Germany, June–August 2009

Institute for Advanced Study, Princeton, USA, February 2009

Albert Einstein Institute, Max Planck Institute, Golm, Germany, June–August 2008

Albert Einstein Institute, Max Planck Institute, Golm, Germany, June–July 2007

Grants

Viterbi Endowed Postdoctoral Scholar Spring 2011

AEI, MPI, Summer 2009/2008/2007

MSRI Postdoctoral Fellowship, Fall 2006–Spring 2007

Faculty Fellowship, Columbia University, 2001–2006

Research Assistant Summer Fellowship, Columbia University, 2005

GSAS Grant for Summer Research Support, Columbia University, Summer 2004

EDISU Fellowship, University of Bari, 1997– 2001

Papers

-*Highly Degenerate Harmonic Mean Curvature Flow* (with P. Daskalopoulos)(Calculus of Variations and PDEs, Volume 35, Issue 3, 2009, 365–384)

-*Global Regularity of Solutions to Systems of Reaction-Diffusion with Sub-Quadratic Growth in any dimension* (with A. Vasseur) (Communications in PDEs, Volume 34, Issue 10, 2009, pages 1228 - 1250)

-*On the evolution of weakly convex hyper-surfaces by the Q_k flow in any dimension N* (with P. Daskalopoulos and N. Sesum) (Communications in PDEs, Volume 35, Issue 3, 2010)

-*Minimally invasive surgery for Ricci flow singularities* (with S. Angenent and D. Knopf) (to appear on J. Reine Angew. Math.)

-*Time Scales: from Nabla Calculus to Delta Calculus and vice versa via Duality* (International Journal of Diff. Eq. Volume 5, Issue 1)

-*Global regularity for some semilinear reaction-diffusion systems with super-quadratic nonlinearities* (with A. Vasseur)(preprint)

-*Nonlocal almost minimal boundaries* (with N. Guillen)(submitted)

Academic Service

Mentor of math undergraduate student at the University of Texas, Fall 2009- Spring 2010
Co-organizer AMS Central Session on *Formation of Singularities in Geometric Flows*, Fall 2009, Baylor University, October 16-18, 2009
Teaching Assistant for Summer School on Geometric PDEs at the IAS, June 8-12, 2009
Co-organizer Postdoctoral Seminar, MSRI, Fall 2006, Spring 2007
Co-organizer PDEs Learning Seminar, Columbia University, Spring 2006

Teaching

Instructor, UA, Calculus III, Fall 2010
Instructor, UA, Linear Algebra, Fall 2010
Instructor, UT Austin, Calculus III, Summer 2010
Instructor, UT Austin, Calculus I, Summer 2010
Instructor, UT Austin, Ordinary Differential Equations, Spring 2010
Instructor, UT Austin, Introduction to Number Theory (Guided Discovery Method), Fall 2009
Instructor, UT Austin, Ordinary Differential Equations, Spring 2009
Instructor, UT Austin, Introduction to Real Analysis (Guided Discovery Method), Fall 2008
Instructor, UT Austin, Ordinary Differential Equations, Spring 2008
Instructor, UT Austin, Integral Calculus, Fall 2007
Teaching Assistant, Columbia University, Calculus III, Fall 2003, Spring 2006
Teaching Assistant, Columbia University, Ordinary Differential Equations, Fall 2005
Instructor, Columbia University, College Algebra and Analytic Geometry, Fall 2004
Instructor, Columbia University, Calculus III, Summer 2004
Teaching Assistant, Columbia University, Analysis and Optimization, Spring 2004
Teaching Assistant, Columbia University, Honors Math, Fall 2003
Instructor, Columbia University, *Mathematica* for Calculus II, Spring 2003
Teaching Assistant, Columbia University, Groups and Symmetries, Fall 2002
Instructor, Columbia University, *Mathematica* for Calculus I, Fall 2002
Teaching Assistant, Columbia University, Calculus II, Spring 2002
Teaching Assistant, Columbia University, Calculus I, Fall 2001

Invited Talks

Western AMS Meeting, Los Angeles, USA, October 2010
AMS Meeting on Elliptic and Parabolic Problems in Geometry, Newark, USA, May, 2010
35th Spring Lecture Series on Minimal surfaces and mean curvature flow, U of Arkansas, USA, April, 2010
Colloquium, University of Arkansas, USA, January, 2010
Seminar talk, Max Planck Institute, Golm, Germany, July, 2009
Seminar talk for AWM summer school on Geometry PDEs, IAS, Princeton, USA, June, 2009
Geometry seminar, Lehigh University, Bethlehem, USA, February, 2009
Geometry-Analysis Seminar Columbia University, New York City, USA, February, 2009
Geometry seminar, University of Texas at Austin, USA, February, 2009
Analysis seminar, University of Texas at Austin, USA, November, 2008
Geometry-Analysis Seminar, University of Wisconsin, Madison, USA, October, 2008
Nonlinear Evolution Equations, Oberwolfach, Germany, June, 2008
Free Boundary Problems, Theory and Applications, Stockholm, Sweden, June, 2008
Analysis seminar, University of Texas at Austin, USA, November, 2007
Colloquium, Wichita University, Wichita, USA, November, 2007
Geometry seminar, University of Texas at Austin, Austin, USA, October, 2007
Seminar talk, Max Planck Institute, Golm, Germany, July, 2007
Geometric Evolution Equations Seminar MSRI, Berkeley, USA, March, 2007
Institute of Mathematical Science, Chennai, India, January, 2007
8th Pacific Rim Geometry Conference, Sydney, Australia, December, 2006
Geometric Evolution Equations Learning Seminar MSRI, Berkeley, USA, December, 2006
Geometric Evolution Equations Advanced Seminar, MSRI, Berkeley, USA, November, 2006
General Postdoctoral Seminar MSRI, Berkeley, USA, November, 2006
Geometry-Analysis Seminar Columbia University, New York City, USA, May 2006

Conferences

- AMS Meeting, Los Angeles, October 2010
- Workshop on IBL Method, UT Austin, June 2010
- AMS Meeting on Elliptic and Parabolic Problems in Geometry, Newark, USA, May, 2010
- AMS Central Session on *Formation of Singularities in Geometric Flows*, Fall 2009, Baylor University, Waco, 16-18 October 2009

- Vieri Benci's Conference: Variational and Topological Methods in Nonlinear Analysis, UTSA, San Antonio, 24-26 September 2009
- Differential Geometrie in Grosse Oberwolfach, Germany, 26 July-1 August 2009
- Mathematical problems in Hydrodynamics, Oberwolfach, Germany, 19-24 July 2009
- Symposium in Analysis and PDEs, Purdue University, Lafayette, 27-30 May, 2009
- Nonlinear Geometric- Analysis Conference, Princeton, 23-28 February 2009
- Luis Caffarelli's Conference: Future Directions in Nonlinear PDE, UT, Austin, 10-13 December 2008
- Nonlinear Geometric- Analysis Conference, Princeton, 30 October 2 November 2008
- 40th Texas Geometry and Topology Conference, UT, Austin, 10-12 October 2008
- Calculus of Variations, Oberwolfach, Germany, 6-12 July 2008
- Nonlinear Evolution Equations, Oberwolfach, Germany, 15-21 June 2008
- Free Boundary Problems, Theory and Applications, Stockholm, Sweden, 9-13 June 2008
- SAGE workshop, University of Texas, Austin, 5-8 May 2008
- Geometry Festival, Duke University, Durham, 25-27 April 2008
- 38th Texas Geometry and Topology Conference, Texas A&M, College Station, 19-21 October 2007
- SAGE workshop, University of Texas, Austin, 3-5 May 2007
- Geometric Flows, MSRI, Berkeley, March 2007
- 8th Pacific Rim Geometry Conference, Sydney, Australia, 11-15 December 2006
- Analytic and Computational Aspects of Elliptic and Parabolic Equations
MSRI, Berkeley, 23-27 October 2006
- Introductory Workshop on Geometric Flows and Function Theory in Real and Complex Geometry
MSRI, Berkeley, 11-15 September 2006
- Connections for Women: Geometric Analysis and Nonlinear Partial Differential Equations
MSRI, Berkeley, 8-9 September 2006
- Introductory Workshop in Nonlinear Elliptic Equations and Its Applications
MSRI, Berkeley, 15-20 August 2005
- Seventh New Mexico Analysis Seminar, University of New Mexico, October 14-15 2004
- International Conference in Harmonic Analysis and PDEs, in Honor of Carlos Kenig,
University of Chicago, Chicago, September 17-19 2004
- 53rd Midwest PDEs Seminar, University of Missouri-Columbia, Columbia, March 19-21 2004
- Geometric Flows: Theory and Computation, IPAM, Los Angeles, February 23 - 27 2004
- XIth SCGAS, University of Irvine, Irvine, February 21-22 2004
- 2nd Symposium in Analysis and PDEs, Purdue University, Lafayette, June 7-10 2004

Summer Schools

- Workshop for Women in Mathematics: An Introduction to Elliptic Partial Differential Equations,
MSRI, Berkeley, USA, 11-13 August 2005
- Variational Calculus, SMI, Cortona, Italy, August 1-15 2004
- Analysis and nonlinear PDEs, 11th Program for Women in Mathematics, Institute for Advanced Study,
Princeton, USA, May 17-27 2004
- Summer school at University of Perugia: Functional Analysis and PDEs, Perugia, Italy 2000

Computer skills

Mathematica, MacOS, Unix, Windows

Personal

Italian citizen

Languages: Fluent in English and Italian. Some knowledge of Spanish.