

Nelia Charalambous

Curriculum Vitae

Personal Information

Address: Departamento de Matemáticas
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Citizenship: Cyprus

Academic Positions

- 2007-Present *Instituto Tecnológico Autónomo de México, Department of Mathematics* Associate Professor C
- 2005-2007 *University of California-Irvine, Department of Mathematics* Visiting Assistant Professor
- 2004-2005 *Cornell University, Department of Mathematics* Postdoctoral Associate and Lecturer

Education

- 1998-2004 *Cornell University* *Ph.D. Mathematics*
Concentration: Global Analysis August, 2004
and Partial Differential Equations on Riemannian Manifolds
Advisors: Professor José Escobar and Professor Leonard Gross
- 2001 *Cornell University* *M.S. Mathematics*
- 1998 *University of North Carolina* *B.S. Mathematics*
Graduated with Highest Honors. Dean's List all four years.
Minor in Physics.

Publications

- 2009 Charalambous N. 'Eigenvalue Estimates for the Bochner Laplacian and Harmonic Forms on Complete Manifolds.' (Accepted by the Indiana University Mathematics Journal)
- 2009 Charalambous N., Gross L. 'The Yang-Mills Heat Equation on Compact Manifolds with Boundary.' (In preparation)
- 2009 Rodrigo M. R., Charalambous N. Laplace Transforms of Solution Trajectories of Continuous Dynamical Systems and Quadratic Forms in the Frequency Domain. (In preparation)
- 2007 Charalambous N. ' L^2 Harmonic Forms and the Structure of Complete Manifolds.' Proceedings of the International Conference in Memory of José F. Escobar, Revista Matemáticas: Enseñanza Universitaria de la ERM, 2007.
- 2007 Charalambous N. 'On the Equivalence of Heat Kernel Estimates and Logarithmic Sobolev Inequalities for the Hodge Laplacian.' Journal of Differential Equations 233:291-312, 2007
- 2005 Charalambous N. 'On the L^p Independence of the Spectrum of the Hodge Laplacian on Non-Compact Manifolds.' Journal of Functional Analysis 224:22-48, 2005
- 2004 Charalambous N. 'On the L^p Independence of the Spectrum of the Hodge Laplacian and Logarithmic Sobolev Inequalities on Non-Compact Manifolds.' Ph.D. Dissertation, Cornell University
- 1998 Charalambous N. 'Foliations on Surfaces.' B.S. Honors Thesis, University of North Carolina at Chapel Hill

Scholarships and Awards

- 2009 CONACYT Sistema Nacional de Investigadores, Nivel 1
- 2006 Association for Women in Mathematics Travel Grant
Partial support to participate in a Conference at Universidad del Valle, Cali, Colombia.
- 2004 EPEAK Pythagoras II Program
Partial support for my research program from the Aristotle University of Thessaloniki.
- 2004 Cornell University, Department of Mathematics Graduate Research Assistant
Funded for one semester from the NSF grant of Professor José Escobar.
- 2002 NSF, IMPA, and Einaudi Center at Cornell University Research Travel Grant
Funded for a three week research trip at IMPA, Rio de Janeiro, Brazil, to promote intellectual exchange among IMPA and the Department of Mathematics at Cornell.

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- 2001 *Cornell University, Department of Mathematics* *Hutchinson Award*
Fellowship awarded to 3rd or 4th year students who are starting on their thesis, based on academic records. It provides relief from TA duties for one semester.
- 1998 *University of North Carolina, Department of Mathematics* *Alfred Brauer Prize*
Given annually to the undergraduate who has demonstrated a high degree of ability in the fields of algebra or number theory.
- 1997 *University of North Carolina, Department of Mathematics* *Archibald Henderson Prize*
Given annually to the undergraduate who has demonstrated both a high degree of mathematical ability and the greatest promise for originality in the field.
- 1994-1998 *Cyprus Fulbright Committee* *Fulbright Scholarship*
A four-year merit-based scholarship given to Cypriot students to partially fund their undergraduate studies at an accredited university in the United States.
- 1994 *Association of Cyprus Physicists* *National Physics Olympiad, Third Prize*
Participation in the 25th International Physics Olympiad in Beijing China.

**Teaching
Experience**

- 2007-Present *Instituto Tecnológico Autónomo de México, Department of Mathematics* *Associate Professor C*
Dynamical Systems II Spring 2008, Fall 2008, Spring 2009
Analysis I Fall 2008
Calculus IV Spring 2008
Calculus I Fall 2007, Spring 2008, Spring 2009
Dynamical Systems I Fall 2007, Fall 2008
Algebra for Engineers Fall 2007
Master's Introductory Math Course Spring 2009
- 2005-2007 *University of California-Irvine, Department of Mathematics* *Visiting Assistant Professor*
Linear Algebra and Infinite Series: Math 2J Summer 2007
Reading course in Differential Geometry: Math 199 Spring 2007
Reading course in Hyperbolic Geometry: Math 199 in Fall 2006
Elementary Differential Equations: Math 3D in Spring 2007, Winter 2007, Fall 2006 & Spring 2006
Modern Geometries: Math 161 in Winter 2006
Calculus I: Math 2A in Fall 2005 (for engineers)
- 2004-2005 *Cornell University, Department of Mathematics* *Postdoctoral Associate and Lecturer*
The Mathematical Experience: Math 103 in Spring 2005
Calculus II: Math 112 in Fall 2004
- 2001-2004 *Cornell University, Department of Mathematics* *Instructional TA*
Instructor of Undergraduate Calculus courses during four semesters.
Calculus I: Math 111 in Fall 2001 & Fall 2003, Math 191 in Fall 2002 (for engineers)
Calculus II: Math 112 in Spring 2002

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Summer 2003 *Cornell University, Department of Mathematics* *Good Questions Project*
Participated in an NSF funded project under the guidance of Dr. M. Terrell for the development and implementation of a set of questions that would help students to obtain a deeper understanding of the concepts of first-semester Calculus. They are currently used in the Math 111 course at Cornell University.

1998-2003 *Cornell University, Department of Mathematics* *Teaching Assistant*
Worked for six semesters holding recitation sessions and/or grading for a variety of courses:
Differentiable Manifolds (graduate): Math 652 in Fall 2000
Multivariable Calculus: Math 222 in Fall 2000 & Spring 2003
Differential Geometry: Math 454 in Spring 2000; Topology: Math 453 in Fall 1999
Honors Calculus: 122 in Fall 1998 & Spring 1999

Invited Talks

October 2009 *VIII Americas Conference on Differential Equations -PASI 2009, Veracruz, Mexico*

June 2009 *Centro de Investigación en Matemáticas, Guanajuato, Mexico*

February 2009 *Instituto de Matemáticas, Cuernavaca, Mexico*

October 2008 *Congreso de la Sociedad Matemática Mexicana, Valle de Bravo, Mexico*

January 2008 *CINVESTAV, Zacatenco, Mexico*

September 2007 *28-th Conference on Quantum Probability and Related Topics, Centro de Investigación en Matemáticas, Guanajuato, Mexico*

September 2007 *Instituto Tecnológico Autónomo de México, Department of Mathematics, Mexico*

June 2007 *University of California- Santa Barbara, Department of Mathematics*

April 2007 *Chapman University, Department of Mathematics*

March 2007 *University College of London, Department of Mathematics*

September 2006 *The University of Cyprus, Department of Mathematics, Cyprus*

September 2006 *Duke University, Department of Mathematics*

July 2006 *The University of Cyprus, Department of Mathematics, Cyprus*

January 2006 *Universidad del Valle, Department of Mathematics, Cali, Colombia*

November 2005 *University of California-San Diego, Department of Mathematics*

October 2005 *University of California-Irvine, Department of Mathematics*

September 2004 *The University of Cyprus, Department of Mathematics, Cyprus*

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- 2003 *Cornell University, Department of Mathematics*
2002 *Instituto Nacional de Matemática Pura e Aplicada (IMPA)- Rio de Janeiro, Brazil*
2002 *Expanding your Horizons, Cornell University*
2001 *Cornell University, Department of Mathematics*
2001 *Hobart College, Department of Mathematics*
2000 *Cornell University, Department of Mathematics*

**Conferences,
Workshops**

- July 2009 *Instituto de Matemáticas, Cuernavaca, V Escuela de Verano en Análisis y Física Matemática*
May 2008 *Instituto de Matemáticas, Cuernavaca, Workshop in Riemannian Geometry*
April 2008 *Duke University Geometry Festival*
January 2008 *University of California-Irvine XVth Southern California Geometric Analysis Seminar*
January 2007 *University of California-San Diego XIVth Southern California Geometric Analysis Seminar*
September 2006 *MSRI, University of California-Berkeley Geometric Analysis and
Nonlinear Partial Differential Equations*
January 2006 *Universidad del Valle, Cali, Colombia International Conference in Memory of José Escobar*
January 2006 *University of California-Irvine XIIIth Southern California Geometric Analysis Seminar*
March 2004 *CRM-Montreal, Canada Spectral Geometry Workshop*
Summer 2002 *IMPA-Rio de Janeiro, Brazil Differential Geometry Seminar*
July 2002 *Goiania, Brazil XII Conference in Differential Geometry*
1999 *MRSI, University of California-Berkeley Summer Program in Exterior Differentiation*

Reviewer

- 2005-Present *Mathematical Reviews, American Mathematical Society*

**Professional
Memberships**

- 1999-Present *American Mathematical Society*
1999-Present *Association for Women in Mathematics*