

CURRICULUM VITAE

Nikolaos Tzirakis

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DATE OF BIRTH: 05/10/1975

EDUCATION: 2004 Ph.D. in Mathematics, University of Massachusetts, Amherst.
2001 M.A. in Mathematics, University of Massachusetts, Amherst.
1999 B.S/M.S. in Mechanical Engineering, National Technical University of Athens, Greece.

Ph.D. THESIS: Global well-posedness for some dispersive partial differential equations.

THESIS ADVISOR: Professor Andrea Nahmod.

RESEARCH AREAS: Harmonic Analysis and Partial Differential Equations.

POSITIONS:
1999 – 2004 Teaching Assistant, University of Massachusetts.
2004 – 2005 Membership at the Institute for Advanced Study at Princeton.
2005 – 2007 University of Toronto, Post-Doctoral Fellow.
2007 – University of Illinois at Urbana-Champaign, Assistant Professor.

AWARDS AND HONORS:

- Papakyriakopoulos Award for Undergraduate Thesis on Mathematics, 1999.
- Clay Mathematics Institute, Liftoff Appointment, Summer of 2004.
- Three year NSF grant award DMS-0901222, 2009-2012.

CONFERENCE ORGANIZER:

- AMS Meeting, Fall 2009, Waco, Texas.

INVITED TALKS

- Second Prairie Analysis Seminar, Lawrence, Kansas, October 2002.
- Applied Math Seminar, University of Massachusetts, March 2004.

- Applied Math Seminar, University of Toronto, September 2004.
- Analysis Seminar, Princeton University, November 2004.
- Harmonic Analysis and Mathematical Physics Seminar, UIUC, February 2006.
- AMS Special Session on Nonlinear Waves, Miami, Florida, April 2006.
- BIRS workshop in Schrödinger Evolution Equations, Banff April 2006.
- Young Mathematicians' conference in PDE and Dynamical systems III, Fields Institute, April 2006.
- Applied Math Seminar, University of Massachusetts, Amherst, May 2006.
- MIT PDE/Analysis Seminar, May 2006.
- Canadian Mathematical Society, Winter Meeting 2006, December 2006.
- PDE Seminar, University of Maryland, December 2006.
- Mathematics Colloquium, University of Illinois at Urbana-Champaign, December 2006.
- Mathematics Colloquium, University of New Mexico, January 2007.
- Mathematics Colloquium, SUNY Buffalo, February 2007.
- Mathematics Colloquium, University of California, Irvine, February 2007.
- Analysis Seminar, Georgia Institute of Technology, November 2007.
- Analysis Seminar, John Hopkins University, March 2008.
- PDE Seminar, University of Maryland, April 2008.
- BIRS: Asymptotics and Singularities in Nonlinear and Geometric Dispersive Equations, August 2008.
- Analysis Seminar, University of Texas, Austin, October 2008.
- Carolina Meeting on Harmonic Analysis and PDE, Chapel Hill, January 2009.
- AMS Meeting, San Francisco, April 2009.

OTHER TALKS

- Applied Math Seminar, University of Massachusetts, March 2004.
- Applied Math Seminar, University of Toronto, November 2006.

- Harmonic Analysis and Mathematical Physics Seminar, Part I, UIUC, October 2007.
- Harmonic Analysis and Mathematical Physics Seminar, Part II, UIUC, October 2007.

PARTICIPATION TO CONFERENCES AND WORKSHOPS

- IAS/Park City Mathematics Institute Summer Session, at Park City, Utah, June 2003.
- The Fields Institute, Workshop on Nonlinear Wave Equations, Toronto, March 2004.
- BIRS workshop in Schrödinger Evolution Equations, Banff April 2006.
- Oberwolfach, Nonlinear Waves and Dispersive Equations, September, 2007.
- BIRS workshop in Asymptotics and Singularities in Nonlinear and Geometric Dispersive Equations, Banff August 2008.
- The Fields Institute, Conference on Non-linear Phenomena in Mathematical Physics: Dedicated to Cathleen Synge Morawetz on her 85th birthday, Toronto September 2008.

REFEREE WORK.

- Communications in Pure and Applied Analysis.
- Differential and Integral Equations.
- Electronic Journal of Differential Equations.
- Journal of Functional Analysis.
- International Mathematical Research Notices.
- SIAM Journal on Mathematical Analysis.
- Applied Mathematics Letters.
- Physica D.
- Michigan Mathematics Journal.
- Illinois Journal of Mathematics.
- American Journal of Mathematics.

TEACHING EXPERIENCE – COURSES TAUGHT

1999–2004 University of Massachusetts

- Calculus I (for Sciences and Engineering students).
- Calculus II (for Sciences and Engineering students).
- Calculus III (for Sciences and Engineering students).
- Dynamical Systems (for Sciences and Engineering students).
- Calculus II (for Business students).

2005–2007 University of Toronto

- Multivariable Calculus.
- Single Variable Calculus.

2007–2009 University of Illinois at Urbana-Champaign

- Advanced Calculus.
- Differential Equations.
- Introduction to Partial Differential Equations.
- Topics Course in Dispersive Partial Differential Equations.

ADMINISTRATIVE POSITIONS

1. Positions internal to the university.
 - Comprehensive Examination Committee on PDEs.

LIST OF PUBLICATIONS AND PREPRINTS

1. *Global well-posedness for some dispersive partial differential equations*, Ph. D. Thesis, 2004, University of Massachusetts, Amherst.
2. *Global well-posedness for the Klein-Gordon-Schrödinger system in dimensions 1, 2, and 3*, Communications in Partial Differential Equations 30 (2005), no. 4-6, 605–641.
3. *Mass concentration phenomenon for the quintic nonlinear Schrödinger equation in 1D*, SIAM J. Math. Anal. 37 (2006), no. 6, 1923–1946.
4. *Improved global well-posedness for the Zakharov and the Klein-Gordon-Schrödinger systems*, (with Jim Colliander and Justin Holmer), to appear in Trans. Amer. Math. Soc.
5. *Multi-linear almost diagonal estimates and applications*, (with Á. Bényi), Studia Mathematica 164. 1, (2004), 75-89.
6. *On the collapse arresting the effects of discreteness*, (with P. G. Kevrekidis), Math. Comput. Simulation 69 (2005), no. 5-6, 553–566.
7. *Global well-posedness for a periodic nonlinear Schrödinger equation in 1d and 2d*, (with D. De Silva, N. Pavlovic and G. Staffilani), Discrete and Continuous Dynamical Systems, Series A. 19 (2007), no. 1, 37–65.
8. *Global well-posedness for the L^2 -critical NLS in higher dimensions*, (with D. De Silva, N. Pavlovic and G. Staffilani), Communications on Pure and Applied Analysis, 6 (2007), no. 4, 1023–1041.

- 9.** *Global well-posedness and polynomial bounds for the defocusing L^2 -critical nonlinear Schrödinger equation in 1d*, (with D. De Silva, N. Pavlovic and G. Staffilani), to appear in Communications in Partial Differential equations.
- 10.** *Improved interaction Morawetz inequalities for the cubic nonlinear Schrödinger equation on 2d*, (with J. Colliander and M. Grillakis), Int. Math. Res. Not. IMRN 2007, no. 23, Art. ID rnm090, 30 pp.
- 11.** *Tensor products and correlation estimates with applications to nonlinear Schroedinger equations*, (with J. Colliander and M. Grillakis), to appear in Commun. Pure Appl. Math.
- 12.** *Ill-Posedness for the Zakharov system in 1d*, (with J. Holmer), in preparation.
- 13.** *Existence of the wave operators in the energy space for the nonlinear Schrödinger and Hartree equations in low dimensions*, (with J. Holmer), submitted.
- 14.** *Remarks on Global A Priori estimates for the nonlinear Schrödinger equation*, (with J. Colliander and M. Grillakis), submitted.
- 15.** *Energy conservation and blow-up of solutions for focusing GP hierarchies*, (with T. Chen and N. Pavlovic), completed.
- 16.** *Near linear dynamics in KdV with periodic boundary conditions*, (with M. B. Erdogan and V. Zharnitsky), in preparation.