

Zaher Hani

CONTACT INFORMATION

Courant Institute of Mathematical Sciences
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DATE OF BIRTH

October, 1986.

RESEARCH INTERESTS

Partial differential equations, real-variable harmonic analysis, infinite dimensional Hamiltonian dynamics, wave turbulence.

EMPLOYMENT

September 2011-now: Courant Institute of Mathematical Sciences, New York University:
Simons Postdoctoral Fellow/Courant Instructor

EDUCATION

2007-2011: University of California, Los Angeles, California USA.

- Ph.D. in Mathematics (June 2011)
Dissertation Topic: *Global and dynamical aspects of nonlinear dispersive equations on compact manifolds.*
Advisor: Terence Tao.
- M.A. in Mathematics, December 2008.

2004-2007: American University of Beirut, Lebanon.

Bachelor of Science in Mathematics (with high distinction).

GRANTS, HONORS, AND AWARDS

- 2013-2016** NSF Grant DMS-1301647 (standard grant).
- 2011-2014** Simons Postdoctoral Fellowship, *Courant Institute, New York.*
- 2011** Heaviside Wealth Management Award for outstanding graduate student research, *UCLA.*
- 2008-2011** Huang Fellowship, *UCLA.*
- 2008** Horn-Moez Prize for Excellence in First Year Graduate Studies, *UCLA.*
- 2007-2008** Pauley Fellowship, *UCLA.*
- 2007** The Muhanna Mathematics Award of Excellence, The Nicolas Jabr Prize, and The Philip Hitti Prize, *American University of Beirut.*
- 2004-2007** Full Scholarship from CNRS of Lebanon (*Conseil National de la Recherche Scientifique*).

Member of AMS and MAA.

PUBLICATIONS

Modified scattering for the cubic Schrödinger equation on product spaces and applications, (joint work with Benoit Pausader, Nikolay Tzvetkov, and Nicola Visciglia). Preprint.

The weakly nonlinear large box limit of the 2D cubic nonlinear Schrödinger equation, (joint work with Erwan Faou and Pierre Germain). Preprint.

Nonlinear resonances with a potential: Multilinear estimates and an application to NLS, (joint work with Pierre Germain and Samuel Walsh). Preprint.

Long-time instability and unbounded Sobolev orbits for some periodic nonlinear Schrödinger equations. Archive for Rational Mechanics and Analysis (ARMA), DOI: 10.1007/s00205-013-0689-6. To appear.

Scattering for the Zakharov system in 3 dimensions, (joint work with Fabio Pusateri and Jalal Shatah). Communications in Mathematical Physics (CMP), September 2013, Volume 322, Issue 3, pp 731–753..

On scattering for the quintic defocusing nonlinear Schrödinger equation on $\mathbf{R} \times \mathbf{T}^2$, (joint work with Benoit Pausader). Communications on Pure and Applied Mathematics (CPAM), DOI 10.1002/cpa.21481. To appear.

Global well-posedness of the 2D–cubic nonlinear Schrödinger equation on compact manifolds without boundary, Comm. PDE. Volume 37, Issue 7, 1186–1236 (2012).

A bilinear oscillatory integral estimate and bilinear refinements to Strichartz estimates on closed manifolds, Analysis & PDE 5-2 (2012) 339–363.

Global and dynamical aspects of nonlinear dispersive equations on compact manifolds, UCLA Ph.D. Thesis.

REFEREE WORK

Communications on Pure and Applied Mathematics (CPAM), Communications in Math. Physics (CMP), Communications in PDE (CPDE), Analysis and PDE, Trans. of the AMS, International Math. Research Notices (IMRN), Annales Henri Poincare, Journal of Differential Equations (JDE), Siam Journal on Mathematical Analysis (SIMA).

INVITED TALKS

- Oct. 2013** *University of Massachusetts, Amherst*: Applied analysis and computation seminar.
- Oct. 2013** *MIT*: Analysis/PDE seminar.
- Sept. 2013** *Courant Institute, NYU*: Analysis seminar.
- June 2013** *Joint International Meeting of the AMS and the Romanian Mathematical Society in Alba Iulia, Romania*: Session on “Nonlinear Evolution Equations”.
- May 2013** *Fields Institute*: Workshop on Wave Interactions and Turbulence.
- March 2013** *University of Toronto*: Analysis and Applied Math Seminar.
- March 2013** *University of British Columbia*: Diff. Geom, Math. Phys., PDE Seminar.
- March 2013** *UCLA*: Southern California Analysis and PDE Conference (SCAPDE).
- March 2013** *Brown University*: PDE seminar.
- Dec. 2012** *Johns Hopkins University*: Analysis seminar.

Sept. 2012 *University of Rome Tre: New perspectives in nonlinear PDE's.*

July 2012 *University of North Carolina: A Conference on Partial Differential Equations: Analytic and Geometric Aspects in honor of Michael Taylor's 65th Birthday.*

May 2012 *MFO, Oberwolfach, Germany: Workshop on Nonlinear Evolution Equations.*

May 2012 *Northwestern University: Workshop on evolution equations: part of a conference in honor of Terence Tao.*

March 2012 *University of Hawaii: Spring 2012 Western Sectional Meeting: Nonlinear partial differential equations at the common interface of waves and fluids.*

Feb. 2012 *University of Toronto: Fields Analysis Working Group Seminar*

Nov. 2011 *University of Pennsylvania: Analysis Seminar.*

Oct. 2011 *Princeton University: Analysis Seminar.*

October 2011 *University of Utah: 2011 AMS Fall Western Section Meeting, Salt Lake City: Special Session on Harmonic Analysis and Dispersive Partial Differential Equations.*

Sept. 2011 *ANR Program: "Hamiltonian and Dispersives Equations : Dynamics", Ile de Berder, France.*

Sept. 2011 *Courant Institute, NYU: Analysis Seminar.*

August 2011 *Université de Cergy-Pontoise, France: Analysis seminar.*

May 2011 *UCLA: Analysis Seminar.*

April. 2011 *UT Austin: Harrington Symposium.*

Nov. 2010 *MIT: Analysis/PDE seminar.*

Nov. 2010 *University of Chicago: Calderon-Zygmund Analysis Seminar.*

Oct. 2010 *UCLA: Analysis Seminar.*

TEACHING
EXPERIENCE

New York University:

Course Instructor

Spring 2014 Graduate Topics in Analysis.

Fall 2012 Math UA140: Linear Algebra.

Fall 2011 Calc III: Multi-variable Calculus.

University of California, Los Angeles:

Teaching Assistant

Fall 2009 Math 246A Graduate Complex Analysis.

Spring 2009 Math 32B: Second course on Calculus of Several Variables.

Spring 2008 Math 32B: Second course on Calculus of Several Variables.

Winter 2008 Math 32A: First course on Calculus of Several Variables.

SEMINAR WORK

New York University:

- In Fall 2011 and Spring 2012 semesters, I organized with Larry Guth and Pierre Germain an informal seminar on “Problems related to the restriction problem”.
- In Fall 2012, I helped organize a seminar on “Water waves”.

REFERENCES

Provided upon request.

October 2013,
New York