PRINCETON UNIVERSITY

Department of Mathematics
Fine Hall – Washington Road
Princeton, New Jersey 08544-1000

Fabio Pusateri

fabiop@math.princeton.edu
https://web.math.princeton.edu/∼fabiop
(646) 318-2278

Education

- *New York University* - Ph.D. in Mathematics, 2011. Adviser: Jalal Shatah.
  Thesis: "*Some topics in hyperbolic and dispersive PDEs*"
- *University of "Roma Tre"* - M.S. in Mathematics, 2006. Adviser: Luigi Chierchia.
  Thesis: "*Analytic KAM Tori for the Planetary Many-Body Problem*"
- *University of "Roma Tre"* - B.S. in Mathematics, 2004.

Appointments

- *Princeton University* - Assistant Professor
  September 2014 - present.
- *Princeton University* - Simons Postdoctoral Fellow / Instructor
  September 2011 - August 2014.

Research Interests

- Analysis of PDEs: Dispersive and Wave Equations.
- Fluid Dynamics, Euler Equations and Water Waves.
- Harmonic Analysis and applications.
- Hamiltonian Dynamics and Small Divisors.

Publications

- **Recent advances on the global regularity for water waves**,
  with A. Ionescu. arXiv:1710.11483. 28 pp. To appear in *Philosophical Transactions A*.
- **The nonlinear Schrödinger equation with a potential**,
  with P. Germain and F. Rousset. arXiv:1704.00061. 50 pp.
- **On the Global Stability of a Beta-Plane Equation**,
  with K. Widmayer. arXiv:1610.03479. 35 pp.
- **Almost global existence for cubic NLS equations in one space dimension**,
  with J. Murphy. arXiv:1605.03247. 23 pp. *DCDS-A* 37 (2017), 2077-2102.
- **Global solutions for the 3D gravity-capillary water wave system, I: Energy Estimates**, weblink.
  with Y. Deng, A. Ionescu. and B. Pausader. arXiv:1601.05685. 77 pp.

- **Global solutions for the 3D gravity-capillary water wave system, II: Dispersive Analysis**, weblink.
  with Y. Deng, A. Ionescu. and B. Pausader. arXiv:1601.05685. 76 pp.

- **Asymptotic stability of solitons for mKdV**,
  with P. Germain and F. Rousset. *Advances in Math.* 299 (2016), 272-330.

- **Global regularity for 2d water waves with surface tension**,
  with A. Ionescu. arXiv:1408.4428. 102 pp. To appear in *Mem. Amer. Math. Soc.*

- **Global analysis of a model for capillary water waves in 2D**,
  with A. Ionescu. *Comm. Pure and Appl. Math.* 69 (2016), no. 11, 2015-2071.

- **Decay and scattering for the Chern-Simons-Schrödinger System**,
  with S.-J. Oh. *Int. Math. Res. Notices.* (2015), no. 24, 13122-13147.

- **On Global Solutions of a Zakharov-Schulman type System**,
  with T. Beck, P. Sosoe and P. Wong. *Nonlinearity* 28 (2015), no. 9, 3419-3441.

- **Global existence for the gravity water waves system in 2D**,
  with A. Ionescu. *Inventiones Mathematicae* 199 (2015), no. 3, 653-804.

- **Modified scattering for the Boson Star equation**.
  Comm. Math. Phys., 332 (2014), no. 3, 1203-1234.

- **Nonlinear fractional Schrödinger equations in one dimension**,
  with A. Ionescu. *J. Funct. Anal.* 266 (2014), no. 1, 139-176.

- **Space-Time resonances and the null condition for wave equations**,
  Boll. Unione Mat. Ital. 6 (2013), no. 3, 513-529.

- **Scattering for the Zakharov system in three dimension**,
  with Z. Hani and J. Shatah. *Comm. Math. Phys.* 322 (2013), no. 3, 731-753.

- **Space-Time resonances and the null condition for first order systems of wave equations**,
  with J. Shatah. *Comm. Pure and Appl. Math.* 66 (2013), no. 10, 1495-1540.

- **A new proof of long range scattering for critical NLS equations**,
  with J. Kato. *Diff. Int. Equations* 24 (2011), no. 9-10, 923-940.

- **On the limit as the surface tension and density ratio tend to zero for the two-phase Euler equations**,
  J. Hyperbolic Differ. Equ. 8 (2011), no. 2, 347-373.

- **On the one fluid limit for vortex sheets**. arXiv:0908.3353, 20 pp.

- **Analytic Lagrangian Tori for the Planetary Many-Body Problem**,
  with L. Chierchia. *Ergodic Th. Dynam. Sys.* 29 (2009), no. 3, 849-873.

Awards and Fellowships

- September 2013 – July 2017: *NSF Grant DMS 1265875.*
- September 2011 – August 2014: *Simons Fellowship.*
- September 2010 – May 2011: *Dean's Dissertation Fellowship.*
- September 2006 – May 2010: *MacCracken Fellowship.*

Teaching

- **Princeton University**:

  Multivariable Calculus - MAT201 (Fall 2017 - 2 sections);

  Differential equations - MAT320 (Spring 2017);

  Multivariable Calculus - MAT201 (Fall 2016 - 2 sections, Course Head);

  Multivariable Calculus - MAT201 (Spring 2016 - 2 sections, Course Head);

  Junior Seminar on Pseudo Differential Operators and the Nash-Moser Theorem - MAT984 (Fall 2015);

  Differential equations - MAT322 (Spring 2015);

  Multivariable Calculus - MAT201 (Fall 2014 - 2 sections, Course Head);

  Real Analysis - MAT320 (Fall 2013);

  Multivariable Calculus - MAT201 (Fall 2012 - 2 sections).

- **New York University**:

  Calculus 1 (Fall 2009);
  ODE (Spring 2009);
  Calculus for social sciences (Fall 2008);
  Analysis 1 (Spring 2008);
  Math patterns in Nature (Fall 2007, Spring 2010, Spring 2011);
  Intro to Math Analysis (Spring 2006).

- **University of "Roma Tre"**:

  Teaching assistant for the following courses:

  Analysis II (Fall 2005); Introduction to Galois Theory (Spring 2005);
  Calculus of several variables (Spring 2004, Fall 2006); Theory of Integration (Spring 2004);
  Analysis I (Fall 2003, Fall 2005); Introduction to Computer Science (Fall 2003).

Mentoring and advising

- Senior Thesis - Stan Palasek '17 (currently PhD candidate at UCLA);
- Junior Thesis (Spring 2016) - Allen Fang '17 (currently PhD candidate at Oxford);
- Reading course on Singular Integrals and Applications - MAT91 (Spring 2016);

Academic services

- Co-organizer of the Analysis Seminar at Princeton University (2012 –)
- Co-organizer of the Seminar on the Analysis of Fluids and related topics at Princeton University (2013 –)
- Course Head for multi-session courses MAT201 in Fall 2014, Spring 2016, Fall 2016.

Selected Talks and Conferences

- Analysis and Dynamics (in celebration of L. Chierchia, Lecce, Italy, October 12-15 2017)
- AMS sectional meeting (Buffalo, September 16-17 2017)
- Nonlinear Waves and Dispersive Equations (Oberwolfach, Germany, June 11-17 2017)
- Water Waves and Related Models Conference, Invited Speaker (Bodega Marine Lab, CA, June 5-9 2017)
- ICERM semester program workshop on "Water Waves " (Apr 24-28 2017)
- IMACS conference on Nonlinear Evolution Equations and Wave Phenomena (Athens, GA, Mar 2017)
- Rice University Colloquium Seminar (Feb 2017)
- University of Toronto Colloquium Seminar (Canada, Jan 2017)
- University of Wisconsin Colloquium Seminar (Jan 2017)
- UCSB Colloquium Seminar (Jan 2017)
- UPenn Analysis Seminar (Nov 2016)
- Johns Hopkins University Analysis Seminar (Sept 2016)
- FRG workshop at MIT (Sept 2016)
- SIAM Conference on Nonlinear Waves and Coherent Structures (Philadelphia, Aug 2016)
- AIMS conference on "Dynamical Systems, Differential Equations and Applications" (Orlando, July 2016)
- Invited speaker at "Nonlinear Waves" Conference at IHES (Paris, France, June 2016)
- Nonlinear Evolution Problems (Oberwolfach, Germany, May 2016)
- Courant Institute/NYU Analysis Seminar (Mar 2016)
- Rutgers University Nonlinear Analysis Seminar (Mar 2016)
- Mathematical Analysis, Modeling, and Applications, SISSA (Trieste, Italy, Jan 2015)
- CUNY Analysis and PDE seminar (New York, Dec 2015)
- 2015 Clay Research Conference: Workshop on Water Waves and Related Fluid Models (Oxford, UK, Sept 2015)
- AMS sectional meeting (Georgetown, DC, Mar 2015)
- Brown University RTG Workshop on PDEs for Fluids (Feb 2015)
- UCLA-Caltech Analysis and PDE seminar (Nov 2014)
- AMS Sectional Meeting (San Francisco State University, San Francisco, CA, Oct 2014)
- UCLA Analysis and PDE Seminar (May 2014)

- Univeristy of Chicago, Calderón-Zygmund Seminar (May 2014)
- Dynamics in Geometric Dispersive Equations and the Effects of Trapping, Scattering and Weak Turbulence (BIRS, Canada, May 4-9, 2014)
- UPenn Analysis Seminar (April 2014)
- University of Minnesota PDE Seminar (January 2014)
- Princeton University Analysis Seminar (December 2013)
- Georgia Tech Colloquium Seminar (December 2013)
- University of Michigan Differential equations seminar (October 2013)
- Brown University PDE Seminar (September 2013)
- Nonlinear Waves and Dispersive Equations (Oberwolfach, Germany, August 12-17, 2013)
- Joint UCLA Analysis Seminar (May 2013)
- Courant Institute/NYU Analysis Seminar (May 2013)
- SIAM SEAS 2013 Annual Meeting (Knoxville, Tennessee, March 22-24, 2013)
- Invited speaker at New perspectives in nonlinear PDEs (Rome, Italy, September 24-28, 2012)
- Princeton University Analysis Seminar (September 2012)
- Invited speaker at Nonlinear Hamiltonian PDEs (Ascona, Switzerland, July 1-6, 2012)
- UPenn Analysis Seminar (December 2011)
- Invited speaker at XIX UMI Congress (Bologna, Italy, September 2011)
- Invited speaker Harrington Symposium on Dispersive PDEs (Austin, Tx, 29-30 April 2011)
- Princeton University Analysis Seminar (April 2011)
- Brown University PDE Seminar (October 2010)
- University of Roma Tre Analysis Seminar (June 2010)