FRANCESCO DI PLINIO – CURRICULUM VITÆ

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Personal and contact information

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1. Academic and professional history

Academic degrees

- Indiana University Bloomington (09/2008–12/2012).
  Ph.D. in Pure Mathematics. GPA: 4.00/4.00
  Doctoral thesis: *L^p bounds for the directional Hilbert transform and endpoint estimates with application to Euler equations.* Advisors Prof. C. Demeter and R. Temam
- Politecnico di Milano (09/2002–07/2007).
  Laurea Magistrale [M.Sc.] in Mathematical methods for Engineering and Sciences, Advisor Prof. V. Pata. Final grade: 110/110 *summa cum laude*.

Academic positions

- Assistant Professor (tenure track), Department of Mathematics, University of Virginia, July 2016-present.
- Tamarkin Assistant Professor, Department of Mathematics, Brown University (September 2014–June 2017; resigned July 2016).
- INdAM-Cofund Marie Curie Fellow, Dipartimento di Matematica, Università degli Studi "Tor Vergata", Roma, Italy (December 2012–August 2014)

Active Grants and professional qualifications

- PI, NSF Grants NSF-DMS-1650810, project title "Endpoint Behavior of Modulation Invariant Singular Integrals", July 2015-June 2018: $151,237 (formerly NSF-DMS-1500049)
- Italian National Scientific Habilitation to Associate Professor, Mathematical Analysis (compartment 01/A3), granted November 2014.

2. Publications

Publications are numbered increasingly by completion date and listed in reverse chronological order within each group.

2.A. Articles currently under peer review and completed preprints

(24) F. Di Plinio and I. Parissis, *A sharp estimate for the Hilbert transform along higher order lacunary directions*, to be submitted, preprint available on personal webpage here

(23) F. Di Plinio, S. Guo, C. Thiele and P. Zorin-Kranich, *Square functions for directional operators in the plane*, to be submitted, preprint available on personal webpage here

(22) F. Di Plinio, *Sparse bounds for singular integrals via the Fourier transform*, to be submitted, preprint available on personal webpage here
(21) F. Di Plinio, A. Giorgini, V. Pata and R. Temam, *The Navier-Stokes-Voigt Equations with Memory in 3D lacking instantaneous kinematic viscosity*, submitted, preprint arXiv:1701.07845
(20) J.M. Conde-Alonso, A. Culiuc, F. Di Plinio and Y. Ou, *A sparse domination principle for rough singular integrals*, submitted, preprint arXiv:1612.09201
(19) Y. Q. Do, F. Di Plinio and G. N. Uraltsev, *Positive sparse domination of variational Carleson operators*, submitted, preprint arXiv:1612.03028
(17) A. Culiuc, F. Di Plinio and Y. Ou, *Domination of multilinear singular integrals by positive sparse forms*, submitted, preprint arXiv:1603.05317

2.B. Published and accepted articles.

2.B.1 Papers receiving acceptance between 04/01/2014 and 03/31/2017

(18) A. Culiuc, F. Di Plinio and Y. Ou, *Uniform sparse domination of singular integrals via dyadic shifts*, preprint arXiv:1610.01958, to appear in Math. Res. Lett.
(16) F. Di Plinio and Y. Ou, *A modulation invariant Carleson embedding theorem outside local L^2*, preprint arXiv:1510.06433, to appear in J. d'Analyse Mathematique
(15) F. Di Plinio and Y. Ou, *Banach-valued multilinear singular integrals*, preprint arXiv:1506.05827, to appear in Indiana Univ. Math. J.
(14) F. Di Plinio and C. Thiele, *Endpoint bounds for the bilinear Hilbert transform*, Trans. Amer. Math. Soc. **368** (2016), no. 6, 3931–3972. MR3453362
(13) F. Di Plinio and R. Temam, *Grisvard's shift theorem near L^∞ and Yudovich theory on polygonal domains*, SIAM J. Math. Anal. **47** (2015), no. 1, 159–178. MR3296605
(12) F. Di Plinio and A. K. Lerner, *On weighted norm inequalities for the Carleson and Walsh-Carleson operators*, J. London Math. Soc. **90** (2014), no. 3, 654–674 MR3291794

2.B.2 Papers receiving acceptance before 04/01/2014

(11) F. Di Plinio, *Weak-L^p bounds for the Carleson and Walsh-Carleson operators*, operators, C. R. Math. Acad. Sci. Paris **352** (2014), no. 4, 327–331 MR3186922
(10) F. Di Plinio, *Lacunary Fourier and Walsh-Fourier series near L^1*, Collect. Math. **65** (2014), no. 2, 219–232. MR3189278
(9) C. Demeter and F. Di Plinio, *Logarithmic L^p bounds for maximal directional singular integrals in the plane*, J. Geom. Anal. **24** (2014), no. 1, 375–416. 3145928
(8) C. Demeter and F. Di Plinio, *Endpoint bounds for the Quartile Operator*, J. Fourier Anal. Appl. **19** (2013), no. 4, 836–856. MR3089425
(7) C. Bardos, F. Di Plinio, R. Temam, *The Euler equations in planar nonsmooth convex domains*, J. Math. Anal. Appl. **407** (2013), no. 1 , 69–89. MR3063105
(6) F. Di Plinio, G. S. Duane, R. Temam, *The 3-dimensional Oscillon Equation*, Boll. Unione Mat. Ital. Ser. IX **5** (2012), no. 1, 19–54. MR29196478
(5) M. D. Chekroun, F. Di Plinio, N. E. Glatt-Holtz, V. Pata, *Asymptotics of the Coleman-Gurtin model*, Discrete Contin. Dyn. Syst. Ser. S **4** (2011), no. 2, 351–369. MR2746378
(4) F. Di Plinio, G. S. Duane, R. Temam, *Time-dependent attractor for the oscillon equation*, Discrete Contin. Dyn. Syst. **29** (2011), no. 1, 141–167. MR2725285
(3) F. Di Plinio, V. Pata, *Robust exponential attractors for the strongly damped wave equation with memory. II*, Russ. J. Math. Phys. **16** (2009), 61–73. MR2486806

(2) F. Di Plinio, V. Pata, *Robust exponential attractors for the strongly damped wave equation with memory. I*, Russ. J. Math. Phys. **15** (2008), 301–315. MR2448344
(1) F. Di Plinio, V. Pata, S. Zelik, *On the strongly damped wave equation with memory*, Indiana Univ. Math. J. **57** (2008), no. 2, 757–780. MR2414334

2.D. Papers in preparation.

- L. Cladek, F. Di Plinio, Y. Ou and I. Parissis, *Sparse bounds for singular integrals along finite type submanifolds*, under completion
- F. Di Plinio and Y. Ou, *Banach-valued multilinear singular integrals with modulation invariance*, in preparation
- F. Di Plinio and I. Parissis, *The lacunary Carleson operator on UMD spaces*, preprint available upon request

3. Seminar talks, courses, workshops, and research stays

2017

- **AIM Workshop** "Sparse domination of Singular Integral operators", San Jose, CA, October 9-13 2017 workshop page, organizer
- **MSRI Workshop** "Recent developments in Harmonic Analysis", Berkeley, CA, May 15-19 2017 workshop page (invited speaker)
- **University of Wisconsin, Madison**, Analysis Seminar, April 4, 2017
- **AMS Central Sectional Meeting, Indiana University Bloomington**, April 1-2, 2017, special session on "Harmonic Analysis and Partial Differential Equations", invited talk
- **Hausdorff Center for Mathematics**, Bonn, March 22-24, 2017, seminar talk and research stay
- **Minicourse on Sparse Domination of Singular Integral Operators beyond CZ theory**, BCAM Bilbao, February 27-March 3, 2017 course webpage
- **Universidad de La Rioja**, Spain, Analysis day at Logrono, February 23 2017, invited talk
- **Basque Center for Applied Mathematics**, Bilbao, Spain, February 22 to April 24, 2017, visiting fellow
- **University of Alabama** Tuscaloosa, Analysis Seminar, February 10, 2017
- **University of Missouri-Columbia**, Analysis Seminar, February 7, 2017
- **University of Birmingham**, United Kingdom, Analysis Seminar, January 31, 2017
- **University of Bologna**, Analysis Seminar, Italy, January 26, 2017

2016

- **Mittag-Leffler Institute**, workshop "Probabilistic Harmonic Analysis and Spectral Theory" Stockholm, Sweden, July 11-15, 2016, invited seminar talk
- **10th El Escorial Conference on Harmonic Analysis and PDEs**, Madrid, Spain, June 12-16, 2016, selected talk
- **University of Wisconsin, Madison**, Conference in Honor of M. Christ, May 15-19 (poster presentation)
- **Universitat Autonoma Barcelona**, Analysis seminar, May 9, 2016
- **Centre de Recerca Matematica**, Workshop on function spaces and high-dimensional approximation, May 3-11, 2016

- **AMS Southeastern Sectional Meeting**, March 5-6, 2016, special session on "Sharp estimates and Bellman functions in Harmonic Analysis", invited speaker
- **Florida State University**, Colloquium, January 22, 2016
- **University of Cincinnati**, Colloquium, January 19, 2016

2015

- **University of Massachussets**, Special Colloquium, December 14, 2015
- **University of Virginia**, Special Colloquium, December 10, 2015
- **Indiana University**, Analysis seminar, September 21-24, 2015
- **ICMAT Madrid**, Analysis and Applications seminar, September 1-4, 2015 (research stay)
- **Politecnico di Milano**, Analysis Seminar, June 14-19, 2015 (invited talk and research stay)
- **Joint AMS-EMS-PMS meeting**, Special session in "Geometric Aspects of Harmonic Analysis", Porto (Portugal), June 10-13, 2015 (invited talk)
- **AIM Workshop** on Carleson's theorem and multilinear operators, Palo Alto (CA) May 17-22, 2015
- **University of Virginia**, Analysis Seminar, April 26, 2015
- **February Fourier Talks**, University of Maryland-College Park, February 18, 2015 (poster presentation)
- **Yale University**, Applied Mathematics Seminar, February 10, 2015

2014

- **Boston University**, Partial Differential Equations seminar, October 15, 2014
- **Oberwolfach Workshop 1430** on Real Analysis, Harmonic Analysis and Applications, July 20-26,2014
- **10th AIMS Conference** on Dynamical Systems, Differential Equations and Applications, July 7-11, 2014, Madrid, Spain. Special session on "Nonlinear Evolution PDEs and Interfaces in Applied Sciences", invited talk
- **Hausdorff Institute for Mathematics**, Bonn, Harmonic Analysis and PDE 2014 trimester program. Research stays: May 11-18, June 16-17 (trimester seminar talk), July 13-20

2013

- **Hausdorff Center for Mathematics**, Bonn, November 30-December 4, 2013 invited talk and research stay
- **SIAM Conference** on Analysis of Partial Differential Equations, December 7-10, 2013, Orlando (FL), United States. Special session MS20, Analysis of Navier-Stokes Equations and Related Fluid Models, invited talk.
- **Joint Meeting of the AMS and the Romanian Mathematical Society**, June 27 - 30, 2013, Alba Iulia, Romania. Special session on Harmonic Analysis and Applications, invited talk
- **XXXIII Convegno Nazionale di Analisi Armonica**, Alba, June 17-20, 2013, invited talk
- **Harmonic Analysis, PDEs and Geometry at ICMAT**, Workshop, Madrid, May 27th-31st, 2013, selected short talk
- **Hausdorff Center for Mathematics**, Bonn, Oberanalysis seminar, May 1-5, invited talk and research stay
- **Indiana University**, Institute for Scientific Computing and Applied Mathematics, Bloomington IN, USA, April 5-16, 2013 (research stay)

- **Brown University**, Analysis and Partial Differential Equations Seminar, Providence RI, USA, April 3, 2013, invited talk
- **Princeton University**, Analysis and Partial Differential Equations Seminar, USA, April 1, 2013, invited talk

2009-2012

- **University of Illinois at Urbana-Champaign**, Dynamical Systems and Ergodic Theory Seminar, October 22, 2012, invited talk
- **9th AIMS Conference** on Dynamical Systems, Differential Equations and Applications, Orlando, FL, USA July 1-5, 2012. Invited talks: special sessions
  #63 Infinite Dimensional Dynamics and Applications (organizers J. C. Robinson, Y. You),
  #77 The Navier-Stokes Equations and Related Problems (organizers S. Necasova, R. Rautmann, W. Varnhorn).
- **9th El Escorial Conference on Harmonic Analysis and PDEs**, Madrid, Spain, June 11-15, 2012, selected short talk
- **Southeastern Analysis Meeting**, March 8-10, 2012, University of Alabama, Tuscaloosa, AL, USA.
- **University of Toledo**, OH, USA, Dynamical Systems Seminar, November 15, 2011, invited talk
- **AMS 2011 Spring Southeastern Section Meeting**, Statesboro, GA, March 12-13, 2011. Special Session on Harmonic Analysis and Applications (organizers D. Bilyk, L. De Carli, A. Stokolos, B. Wick), invited talk
- **Conference on Nonlinear Evolution Equations** Mondello, Palermo (Italy), June 8-11, 2010 (organizers G. Grillo et al.), invited talk
- **Conference on Mathematical Models and Analytical Problems for Special Materials**, July 9-11, 2009 (organizers P. Colli, C. Giorgi, M. Grasselli et al.), invited talk

4. Departmental and Professional Service

Conference/Workshop organization

- **American Institute of Mathematics** workshop "Sparse domination of Singular Integral operators", San Jose, CA, October 9-13 2017, workshop page, organizer with A. Culiuc, Y. Ou.
- **10th AIMS Conference** on Dynamical Systems, Differential Equations and Applications, July 7-11, 2014, Madrid, Spain. Special session on "Harmonic Analysis tools in Fluid Mechanics", organizer with R. Temam and D. Wirosoetisno

Seminarial and Departmental activity

- **University of Virginia** Learning Analysis seminar, co-organizer, Fall Semester 2016
- **University of Virginia** Analysis seminar, co-organizer, Academic Year 2016-17
- **Brown University** organizer of an Harmonic Analysis research seminar for graduate and undergraduate students in Mathematics, Academic Years 2014-15, 2015-16
- **Brown University** Analysis seminar, co-organizer, Academic Years 2014-15, 2015-16
- **Indiana University** Graduate Student seminar] speaker and organizer (Fall 2010-2012)

Editorial activity and Professional service

· Referee for the following journals (selection):
  – **2017**: Transactions AMS, Indiana Univ. Math. J., Mathematika, Michigan Math. J.
  – **2016**: International Math. Res. Notices (IMRN), Analysis and PDE, Rev. Mat. Iberoamericana, Proceedings AMS, American J. of Math., J. European Math. Soc.
  – **2015**: J. European Math. Soc., Revista Matematica Iberoamericana, American J. of Math. (2), J. Geometric Analysis, Indiana Univ. Math. J., Boundary Value Problems, Monatshefte Math.
  – **2008-14**: Indiana Univ. Math. J, J. London Math. Soc., Asymptotic Analysis (2), J. of Differential Equations (3), Discrete and Continuous Dynamical Systems (2), Nonlinear Analysis (2)

4. Teaching, Advising and Mentoring

Courses taught

· **Fall 2016, University of Virginia** MATH 3310 - Basic Real Analysis
· **Fall 2016, University of Virginia** MATH 1320 - Calculus II
· **Spring 2016, Brown University** MA 0200 - Intermediate Calculus (2 sections) - Course Coordinator
· **Fall 2015, Brown University** MA 2210 - Real Function Theory (graduate course)
· **Spring 2015, Brown University** MA 0540 - Honors Linear Algebra, Instructor
· **Fall 2014, Brown University** MA 0170 - Advanced placement Calculus, Instructor
· **Fall 2014, Brown University** MA 1610 - Probability, Instructor
· **Fall 2012, Indiana University** Instructor, M119-Brief Survey of Calculus 1 (large section)
· **Summer 2012, Indiana University**Instructor, Jumpstart preparation for PhD Qualifying exams - Analysis
· **Spring 2012, Indiana University** Associate instructor, Graduate Real Analysis 2 - M512
· **Fall 2011, Indiana University** Associate instructor, Honors Calculus 3 - S311 and Calculus 2 - M212; Instructor, Gre Math Preparation - S499
· **Summer 2010, Indiana University** Instructor, Jumpstart preparation for PhD Qualifying exams - Analysis
· **Fall 2010, Indiana University** Associate instructor, Dynamical System and Ergodic Theory - M557 and Linear Algebra - M303
· **Academic Year 2007-08, Politecnico di Milano** Assistant Lecturer, Mathematical Analysis 1 and 2 and Differential Equations

Advising, PhD Committee Memberships

· **University of Helsinki** Emil J. Vuorinen, external reviewer for PhD dissertation (advisors T. Hytönen and H. Martikainen), expected defense May 2017.
· **Brown University** Amalia V. Culiuc, PhD Committee member (chair: Sergei Treil), graduated Spring 2016
· **Brown University** Max Mulitz, Undergraduate Honors thesis supervision, graduated Spring 2016

5. Miscellaneous activity and awards

Other courses and activities

- Workshop for Women in Analysis and PDE, Institute for Mathematics and its Applications, University of Minnesota, May 30-June 2.
- NSF - UCLA Summer School on Geometric and Fourier analytic questions in Euclidean space, September 10–September 15, 2011 (organizer: C. Thiele)
- NSF - UCLA Summer/Fall School on Weighted Estimates for Singular Integrals, October 03 -October 08, 2010 (organizer: C. Thiele)
- SMI Summer School in Mathematics, August 2007. Courses attended: Functional Analysis (R. Laugesen, University of Illinois; final grade 30/30 *cum laude*), Differential equations (A. Visintin, Università di Trento; final grade 30/30).
- International Mathematics Olympiads, Italian National finalist, 2002.

Awards

- J. and F. M. Swain Fellowship, Indiana University, for outstanding graduate student research activity, Academic Year 2011-2012
- Robert E. Weber Memorial Award, Indiana University, for the Best Tier 1 Qualifying exams, Spring 2009
- Fondazione Fratelli Confalonieri Milano Master Thesis Award and Fellowship, EUR 6000, Academic Year 2007-2008

6. References

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