



Gennady Uraltsev

Curriculum Vitae

Occupational field Higher education & research - mathematics

Area of Research Harmonic analysis, time-scale-frequency analysis, stochastic PDEs, functional analysis

Current employment Whyburn Research Associate and Instructor (Postdoc)

Current affiliation University of Virginia - Mathematics

Employment history and education

- 2020– **Whyburn Research Associate**, *University of Virginia - Mathematics*, Charlottesville, VA, 22904, USA.
- 2017–2020 **HC Wang Assistant Professor**, *Cornell University - Mathematics Department*, Ithaca, NY, 14853, USA.

Education

- 2013–2017 **PhD in Mathematics**, *Bonn International Graduate School, University of Bonn*, Bonn, Germany.
- 2011–2013 **Master of Science in Mathematics**, *Department of Pure and Applied Mathematics, University of Pisa*, Pisa, Italy, 110/110 Cum Laude.
- 2011–2013 **Diploma of Mathematics (Class of Science)**, *Scuola Normale Superiore*, Pisa, Italy, 70/70.
- 2008–2011 **Bachelor of Science in Mathematics**, *Department of Pure and Applied Mathematics, University of Pisa*, Pisa, Italy, 110/110 Cum Laude.
- 2008–2011 **First level Diploma of Mathematics (Class of Science)**, *Scuola Normale Superiore*, Pisa, Italy.

Theses

- PhD thesis **Time-Frequency Analysis of the Variational Carleson Operator using outer-measure L^p spaces**, supervisor: Prof. Dr. Christoph Thiele, Bonn International Graduate School - University of Bonn.

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Master thesis **Multi-parameter Singular Integrals: Product and Flag Kernels**, *supervisor: Prof. Fulvio Ricci*, Pisa State University/Scuola Normale Superiore.

Bachelor thesis **Regularity of Minimizers of One-Dimensional Scalar Variational Problems with Lagrangians with Reduced Smoothness Conditions**, *supervisor: Prof. Luigi Ambrosio*, Pisa State University/Scuola Normale Superiore.

Publication list

- Chan, T., and Uraltsev, G. 2022. ‘Carleson embeddings with quadratic modulation invariance: the Walsh case’ *in preparation*
- Casteras, J.B., Földes, J., and Uraltsev, G., 2022. ‘Higher order expansions for the probabilistic local well-posedness theory for a cubic nonlinear Schrödinger equation’ *in preparation*

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1. Casteras, J.B., Földes, J., and Uraltsev, G., 2022. “Almost sure local well-posedness for cubic nonlinear Schrödinger equation with higher order operators” *preprint arXiv:2203.03500*, submitted.
 2. Uraltsev, G. and Warchalski, M., 2022. “The full range of uniform bounds for the bilinear Hilbert transform” *preprint arXiv:2205.09851*.
 3. Amenta, A. and Uraltsev, G., 2020. “The variational Carleson operator in UMD spaces”. *Journal of the London Mathematical Society* 105.3 (2022): 1363-1417.
 4. Amenta, A. and Uraltsev, G., 2020. “The bilinear Hilbert transform in UMD spaces”. *December 2020 Mathematische Annalen* 378(8):1-93.
 5. Amenta, A. and Uraltsev, G., 2019. “Banach-valued modulation invariant Carleson embeddings and outer- L^p spaces: the Walsh case”. *August 2020 Journal of Fourier Analysis and Applications* 26(4).
 6. Di Plinio, F., Do, Y.Q. and Uraltsev, G.N., 2018. “Positive Sparse Domination of Variational Carleson Operators”. *Annali della Scuola Normale Superiore di Pisa. Classe di scienze*, 18(4), pp.1443-1458 .
 7. Uraltsev, G., 2016. “Variational Carleson embeddings into the upper 3-space”. *preprint arXiv:1610.07657*, submitted.
 8. C. Mantegazza, G. Mascellani, and G. Uraltsev, 2014. “On the distributional Hessian of the distance function”. *Pacific Journal of Mathematics* 270.1: pp.151-166.

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- PhD thesis. “Time-Frequency Analysis of the Variational Carleson Operator using outer-measure L^p spaces”, *supervisor: Prof. Dr. Christoph Thiele*, Bonn International Graduate School - University of Bonn
 - Master thesis. “Multi-parameter Singular Integrals: Product and Flag Kernels” *supervisor: Prof. Fulvio Ricci*, Pisa State University/Scuola Normale Superiore
 - Bachelor thesis. “Multi-parameter Singular Integrals: Product and Flag Kernels” *supervisor: Prof. Luigi Ambrosio*, Pisa State University/Scuola Normale Superiore

Selected talks

Mar 2023 **Southeastern Analysis Meeting 39 - Clemson University**, TBA, Semi-plenary speaker.

Sep 2022 **UVA Analysis and PDE seminar**, “Local well-posedness of the cubic NLS with randomized initial data”, speaker.

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- Mar 2022 **UVA Analysis and PDE seminar**, “Uniform bound for the Bilinear Hilbert transform”, speaker.
2022 AMS Spring Central Virtual Sectional Meeting, “Uniform bound for the Bilinear Hilbert transform”, invited speaker.
- Oct 2021 **UVA Teaching seminar**, “Using computer assisted mathematics systems to teach multivariable calculus”, invited speaker.
- Oct 2021 **UVA Analysis and PDE seminar**, “Embedding maps, outer Lebesgue spaces, and time-scale-frequency analysis”, speaker.
- Feb 2021 - **Seminar in Analysis and Applications UAM-ICMAT**, “Banach-space-valued time-scale-frequency analysis”, invited speaker.
Jun 2021 **Online Analysis Research Seminar**, “Some results in Banach space-valued time frequency analysis”, invited speaker.
- Sep 2020 - **Seminari a distanza di Analisi Armonica**, “Some results in Banach space-valued time frequency analysis”, invited speaker.
Dec 2020 **Probability and Analysis Webinar**, “Some results in Banach space-valued time frequency analysis”, invited speaker.
UVA Analysis and PDE seminar, “Some results in Banach space-valued time frequency analysis I& II”, speaker.
- Jul 2020 **Mathematisches Forschungsinstitut Oberwolfach, Germany, Work group seminar**, “Vector valued Calderón-Zygmund and time frequency analysis”, co-organizer.
- Mar 2020 **Cornell University, Oliver Club (colloquium)**, “Uniform bounds in harmonic analysis”, invited speaker.
- Oct 2019 **Washington University, St.Louis, Analysis seminar**, “Uniform bounds for the bilinear Hilbert transform”, invited speaker.
- Oct 2017 - **St. Petersburg Chebychev laboratory seminar**, “Uniform bounds for the bilinear Hilbert transform”, invited speaker.
Dec 2017 **NEAM 2017: Second Northeastern Analysis Meeting**, “Uniform bounds for the bilinear Hilbert transform”, short talk speaker.
- Jun 2017 **Math Department, Delft University**, “Variational Carleson and beyond using embedding maps and iterated outer measure spaces”, invited speaker.
- Feb 2017 **Math Department, Nantes University**, “Time-frequency analysis of modulation invariant operators using outer measure spaces”, speaker.
- Dec 2016 **St. Petersburg Chebychev laboratory minicourse**, “Time-frequency analysis of modulation invariant operators using outer measure spaces”, lecturer-speaker.
- Nov 2016 - **Math Department, Brown University**, “Variational Carleson and beyond using embedding maps and iterated outer measure spaces”, invited speaker.
May 2017 **Math Department, Michigan State University**, “Variational Carleson and beyond using embedding maps and iterated outer measure spaces”, invited speaker.
Math Department, Cornell University, “Variational Carleson and beyond using embedding maps and iterated outer measure spaces”, invited speaker.

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Convegno nazionale di analisis armonica, “*Variational Carleson and beyond using embedding maps and iterated outer measure spaces*”, invited speaker.

Feb.-Mar. 2016 **Math Department, Yale University**, “*Time frequency analysis below local L^2 : Iterated outer measure L^p spaces*”, invited speaker.

Math Department, Brown University, “*Time frequency analysis below local L^2 : Iterated outer measure L^p spaces*”, invited speaker.

2013-2016 **Math Department, Bonn University**, *various topics*, speaker at research group seminar.

Awards and scholarships

- Bonn International Graduate School: Full Scholarship for 3-years
- Scuola Normale Superiore: Full Scholarship Award winner for a 5-year term of studies in the Science Class of Scuola Normale Superiore di Pisa. Total scholarships: 30 per year

Olympiads

- International Physics Olympiad 2008, Vietnam : member of the Italian team, Honourable Mention
- National Physics Olympiad 2008, Italy: Gold Medal
- National Mathematics Olympiad 2008, Italy: Gold Medal
- National Physics Olympiad 2007, Italy: Gold Medal

Teaching

Courses

Aug 2022 - Calculus 3 - Multivariable *Instructor*, University of Virginia
Dec 2022

Jan 2022 - Basic Real Analysis *Instructor*, University of Virginia
May 2022

Aug 2021 - Calculus 3 - Multivariable *Instructor*, University of Virginia
Dec 2021

Jan 2021 - Basic Real Analysis *Instructor*, University of Virginia
May 2021

Aug 2020 - Introduction to Real Analysis *Instructor*, University of Virginia
Dec 2020

Aug 2020 - Calculus 3 - Multivariable *Instructor*, University of Virginia
Dec 2020

Jan 2020 - Honors Analysis I *Instructor*, Cornell University
May 2020

Sept 2019 - Honors Analysis I *Instructor*, Cornell University
Dec 2019

Sept 2019 - Graduate PDE I *Instructor*, Cornell University
Dec 2019

Jan 2019 - Topics in Analysis: Rough path theory and paracontrolled distributions for (stochastic) ODEs and PDEs *Instructor*, Cornell University
May 2019

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- Jan 2019 - Introduction to PDE *Instructor*, Cornell University
 May 2019
- Aug 2018 - Real Analysis and Measure Theory *Instructor*, Cornell University
 Dec 2018
- Jan 2018 - Multivariable Calculus *Instructor*, Cornell University
 May 2018
- Aug 2017 - Calculus I *Instructor*, Cornell University
 Dec 2017
- Oct 2014 - Introduction to Real and Harmonic Analysis *Teaching Assistant*, Universität Bonn,
 Feb 2015 Professor: Prof. Dr. Herbert Koch
- March 2016 - Complex Analysis *Course assistant*, Universität Bonn, Professor: Prof. Dr. Christoph
 Sept 2016 Thiele
- March 2015 - Analysis 2 *Course assistant*, Universität Bonn, Professor: Prof. Dr. Christoph Thiele
 Sept 2015

Reading seminars

- Sep 2022 - **Rough paths and SPDEs**, *Reading seminar*, organizer and presenter, University of Virginia.
- Apr 2020 **Lebesgue Integration crash course**, *undergraduate students minicourse*, lecturer, Cornell University.
- Feb 2018 - **Polynomial methods in harmonic analysis**, *reading seminar*, organizer and presenter, Cornell University.
 Mar 2018

Other/service

- Aug 2022 - **Undergraduate directed reading program**, *Member of organizing committee*,
 Dec 2022 University of Virginia.
- Jan 2022 - **Undergraduate directed reading program**, *Member of organizing committee*,
 Mar 2022 University of Virginia.
- Aug 2021 - **Undergraduate directed reading program**, *Member of organizing committee*,
 Dec 2021 University of Virginia.
- Aug 2021 - Preparation course for Putnam math competition *assistant*, University of Virginia
 Dec 2021
- Aug 2019 - Preparation course for Putnam math competition *Instructor*, Cornell University
 Dec 2019
- Aug 2018 - Preparation course for Putnam math competition *Instructor*, Cornell University
 Dec 2018
- Aug 2017 - Preparation course for Putnam math competition *Instructor*, Cornell University
 Dec 2017

Mentoring and outreach

- Sep 2022 **Undergraduate math club**, “*Computer technologies for doing mathematics: from LaTeX to Mathematica and python*”, speaker, University of Virginia.

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- Sep 2022 **Undergraduate math club**, “*Computer technologies for doing mathematics: from LaTeX to Mathematica and python*”, speaker, University of Virginia.
- Jan 2022 - **Undergraduate directed reading**, “*Introduction to Fourier analysis*”, mentor,
 May 2022 mentee: Ningxin Zhang.
 University of Virginia
- Jan 2022 - **Undergraduate directed reading**, “*Introduction to fractals and Hausdorff dimension*”, mentor, mentee: Ivory Tang.
 May 2022 University of Virginia
- Sep 2021 - **Undergraduate thesis - Tiklung Chan**, “*Weak L^2 -boundedness of the Walsh*
 Jan 2022 *Quadratic Carleson operator*”, advisor, Cornell University.
- Sep 2021 - **Undergraduate directed reading**, “*Harmonic analysis*”, mentor, mentee: Tiklung
 Jan 2022 Chan.
 Cornell University
- Mar 2021 **Undergraduate math club**, “*Reality at different scales: randomness, chaos, fractals, and rough behavior*”, speaker, University of Virginia.
- Oct 2017 **What is? seminar**, “*What is time-scale-frequency analysis*”, Cornell University.

Computer skills

Administration of a computer cluster/ network administration level: advanced.

Linux level: advanced.

Computational mathematics tools (Jupyter/Mathematica): level: intermediate.

Languages

- Russian **C2 - Proficient– native language**
 Italian **C2 - Proficient**
 English **C2 - Proficient**
 French **B2 - Independent user**
 German **A2 - Basic user**

Certificates

- 2005 Certificate of Advanced English, University of Cambridge ESOL *Grade: A*
- 2012 TOEFL iBT *Reading: 30/30, Listening: 30/30, Speaking: 28/30, Writing: 30/30, Total: 118/120*

References

Name Prof. Dr. Christoph Thiele
 Affiliation Bonn University (Germany)
 Email thiele@math.uni-bonn.de

Name Prof. Yen Do
 Affiliation University of Virginia (USA)

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Name Prof. Juraj Földes
Affiliation University of Virginia (USA)
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Name Prof. Michael Lacey
Affiliation Georgia Institute of Technology (USA)
Email lacey@math.gatech.edu

Name Prof. Francesco Di Plinio
Affiliation Università di Napoli Federico II (Italy)
Email francesco.diplinio@unina.it

Name Prof. Camil Muscalu
Affiliation Cornell University(USA)
Email camil@math.cornell.edu

Name Prof. Sara Maloni (teaching)
Affiliation University of Virginia (USA)
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