

# TAMARA KUCHERENKO

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## POSITIONS

Math Doctoral Faculty	CUNY Graduate Center	2021 – Present
Associate Professor	The City College of New York	2020 – Present
Assistant Professor	The City College of New York	2013 – 2020
Lecturer	The City College of New York	2010 – 2013
Assistant Adjunct Professor	University of California - Los Angeles	2007 – 2010
Lecturer and Assistant Researcher	University of California - Los Angeles	2005 – 2007

## DEGREES

Ph. D.	University of Missouri - Columbia, Missouri Advisor: Nigel Kalton	2005
Diploma	Kharkov National University - Ukraine	2001

## PUBLICATIONS

- *Flexibility of the Pressure Function*,  
joint with A. Quas, Commun. Math. Phys., 395 (2022), 1431–1461
- *Multiple Phase Transitions on Compact Symbolic Systems*,  
joint with A. Quas and C. Wolf, Advances in Mathematics, 385 (2021), 107768.
- *Measures of maximal entropy on subsystems of topological suspension semi-flows*,  
joint with D. Thompson, Studia Mathematica, 260 (2) (2021), 229-240.
- *Measures of maximal entropy for suspension flows over the full shift*,  
joint with D. Thompson, Mathematische Zeitschrift, 294 (1) (2020), 769-781
- *Ground states and zero temperature measures at the boundary of rotation sets*,  
joint with C. Wolf, Ergodic Theory and Dynamical Systems, 39 (1) (2019), 201-224.
- *A suspension flow over the full shift with two distinct measures of maximal entropy*,  
joint with D. Thompson, Topology Proceedings 52 (2018), 321-328.
- *Entropy and rotation sets: A toy model approach*,  
joint with C. Wolf, Communications in Contemporary Mathematics 18 (2016).
- *Localized pressure and equilibrium states*,  
joint with C. Wolf, Journal of Statistical Physics 160 (2015), 1529-1544.
- *Localized variational principle for non-Besicovitch metric spaces*,  
Topology and its Applications 190 (2015), 22-30.

- *Comments on the paper: Operators with an absolute functional calculus*, Nigel J. Kalton Selecta, Vol. 1, (F. Gesztesy, G. Godefroy, L. Grafakos, and I. Verbitsky, editors), Contemporary Mathematicians, Birkhäuser-Springer, (2015)
- *Geometry and entropy of generalized rotation sets*, joint with C. Wolf, Israel Journal of Mathematics 199 (2014), 791-829.
- *Operators with an absolute functional calculus*, joint with N. Kalton, Mathematische Annalen 346 (2010), 259-306.
- *Rademacher bounded families of operators on  $L_1$* , joint with N. Kalton, Proceedings of the American Mathematical Society 136 (2008), 263-272.
- *Sectorial operators and interpolation theory*, joint with N. Kalton, Contemporary Mathematics 445 (2007), 111-119.
- *Real interpolation of domains of sectorial operators on  $L_p$ -spaces*, joint with L. Weis, J. Mathematical Analysis and Applications 310 (2005), 278-285.
- *R-bounded approximating sequences and applications to semigroups*, joint with M. Hoffmann and N. Kalton, J. Mathematical Analysis and Applications 294 (2004), 373-386.
- *Weak topologies and properties fulfilled almost everywhere*, joint with V. Kadets, Math. Fiz. Anal. Geom. 8 (2001), 261-271.

#### PREPRINTS

- *Asymptotic behavior of the pressure function for Holder potentials*, joint with A. Quas, preprint.

#### AWARDS AND FELLOWSHIPS

- Simons Foundation: Collaboration Grants for Mathematicians # 855117, 2021 – 2026  
Project: *Equilibrium States, Zero Temperature Limits and Phase Transitions in Topological Dynamics.*
- PSC-CUNY Research Grant, 2021 – 2022  
Project: *Flexibility of the Pressure Function*
- PSC-CUNY Research Grant, 2019 – 2020  
Project: *Measures of maximal entropy for suspension flows over the full shift*
- PSC-CUNY Research Grant, 2018 – 2019  
Project: *Quantization dimensions for condensation systems*
- PSC-CUNY Research Grant, 2017 – 2018  
Project: *Geometric properties of generalized rotation sets*
- Simons Foundation: Collaboration Grants for Mathematicians # 430032, 2016 – 2021  
Project: *Localized topological pressure and the geometry of rotation sets.*
- PSC-CUNY Research Grant, 2016 – 2017  
Project: *Irrational polygons as rotation sets for torus homeomorphisms*
- Faculty Travel Award 2016

- PSC-CUNY Research Grant 2015 – 2016  
Project: *Zero Temperature Measures on the Boundary of Rotation Sets.*
- William Stewart Travel Award 2015
- PSC-CUNY Research Grant 2014 – 2015  
Project: *Localized Variational Principle and Equilibrium States*
- PSC-CUNY Research Grant 2013 – 2014  
Project: *Geometry of Rotation Sets and the Associated Entropies*
- Pre-Calculus Course Redesign 2013 – 2014
- CETL - Technology Grant for Transforming Teaching, CCNY 2012 – 2013
- Title V Grant – Design of Online Homework Tools, CCNY 2011 - 2014
- Departmental Research Graduate Assistantship, University of Missouri 2001 – 2005
- DAAD German Academic Exchange Fellowship 2003 – 2004
- University Research Fellowship, University of Karlsruhe, Germany 2004
- Departmental Fellowship, University of Missouri 2001 – 2002

### RESEARCH STAYS

- *Research in Teams: Geometry of Rotation Sets* (with Jan Boronski), one week stay at Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, Alberta, Canada 2022
- *Oberwolfach Research Fellows* (with Martin Schmoll, Christian Wolf, and Yun Yang), two-weeks stay at Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach-Walke, Germany 2022
- *One-week stay at the University of Victoria* (with Anthony Quas), Victoria, Canada 2022

### SELECTED TALKS AND CONFERENCES

- *56th Spring Topology and Dynamical Systems Conference*, Rhodes College, Memphis, TN 2023
- *Learning Seminar on Dynamical Systems and Ergodic Theory*, Graduate Center of CUNY, New York, NY 2023
- *Dynamical Systems Seminar*, Penn State University, State College, PA 2023
- *Semi-annual Workshop in Dynamical Systems and Related Topics*, Anatole Katok Center For Dynamical Systems And Geometry, State College, PA 2022
- *Geometry of Deterministic and Random Fractals*, Budapest University of Technology and Economics, Budapest, Hungary 2022
- *The 51st John and Lida Barrett Memorial Lectures: Exotic continua in modern mathematics*, University of Tennessee, Knoxville, TN 2022
- *Complex Analysis and Dynamics Seminar*, Graduate Center of CUNY, New York, NY 2022
- *55th Spring Topology and Dynamical Systems Conference*, Baylor University, Waco, TX 2022
- *Workshop on Flexibility and Rigidity in Dynamical Systems*, Simons Center for Geometry

- and Physics, Stony Brook University, Stony Brook, NY 2022
- *Department of Differential Equations Seminar*, AGH University of Science and Technology, Kraków, Poland 2021
- *Analysis Seminar*, Clemson University, Clemson, SC 2021
- *Dynamics Seminar*, University of Maryland, College Park, MD 2021
- *Zoominar in Dynamical Systems*, Centro de Matemática - Universidade do Porto, Portugal 2021
- *New frontiers in dimension theory of dynamical systems - Applications in metric number theory*, Institut Mittag-Leffler, Djursholm, Sweden 2021
- *Spring Topology and Dynamics Conference*, hosted online by Murray State University, Murray, KY 2021
- *Dynamics Seminar*, University of Victoria, Victoria, British Columbia, Canada 2021
- *UC San Diego Group Actions Seminar*, San Diego, California 2021
- *Ergodic Theory Seminar*, Ohio State University, Columbus, Ohio 2020
- *Expanding Dynamics – COVID (Creative Online Ventures in Dynamics)*, online conference. 2020
- *Special Session on Fractal Geometry Dynamical Systems and Applications*, AMS National Meeting, Denver, Colorado 2020
- *Thermodynamic Formalism : Dynamical Systems, Statistical Properties and their Applications*, CIRM, Marseille, France 2019
- *Thermodynamic Formalism: Ergodic Theory and Geometry*, The University of Warwick, Coventry England 2019
- *Equilibrium states for dynamical systems arising from geometry*, American Institute of Mathematics, San Jose, California 2019
- *Dynamics, Measures and Dimensions*, Stefan Banach International Mathematical Center, Bedlewo, Poland 2019
- *Complex Analysis and Dynamics Seminar*, University of Connecticut, Storrs, Connecticut 2018
- *Special session on Statistical and Geometrical Properties of Dynamical Systems*, AMS Sectional Meeting, San Francisco, California 2018
- *Special session on Quantization for Probability Distributions and Dynamical Systems*, AMS Sectional Meeting, Nashville, Tennessee 2018
- *Dynamics and Analysis Seminar*, Wesleyan University, Middletown, Connecticut 2017
- *Complex Analysis and Dynamics Seminar*, Graduate Center of CUNY, New York 2017
- *Special session on Fractal Geometry and Ergodic Theory*, AMS Sectional Meeting, Denton, Texas 2017
- *Current Trends in Dynamical Systems and the Mathematical Legacy of Rufus Bowen*, PIMS, Vancouver, Canada 2017
- *School on Contemporary Dynamical Systems*, CRM, Montreal, Canada 2017
- *Dynamics Beyond Uniform Hyperbolicity*, Provo, Utah 2017
- *51th Spring Topology and Dynamics Conference*, New Jersey City University, Jersey City, New Jersey 2017
- *Complex Analysis and Dynamics Seminar*, Graduate Center of CUNY, New York 2017
- *Special Session on Ergodic Theory and Dynamical Systems*, AMS National Meeting, Atlanta, Georgia 2017
- *The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, Orlando, Florida 2016
- *50th Spring Topology and Dynamics Conference*, Balor University, Waco, Texas 2016
- *Dynamical Systems Seminar*, Stony Brook University, Stony Brook, New York 2016
- *Special session on Fractal Geometry and Dynamical Systems*, AMS Sectional Meeting, Memphis, Tennessee 2015
- *Ergodic Theory, Fractals and Groups*, Israeli Institute for Advanced Studies, Jerusalem, Israel 2015
- *49th Spring Topology and Dynamics Conference*, Bowling Green State University, Bowling Green, Ohio 2015
- *Ergodic Optimization and Related Fields*, Institute of Mathematics and Statistics of the University of São Paulo, São Paulo, Brazil 2013

- *Young mathematicians in dynamical systems*, CIRM, Marseille, France 2013
- *Thermodynamic Formalism and Applications*, Pontificia Universidad Católica de Chile, Santiago, Chile 2013
- *Special Session on Dynamical Systems: Thermodynamic Formalism and Connections with Geometry*, Spring Western Sectional Meeting of the AMS, Boulder, Colorado 2013
- *Ergodic Theory Seminar*, Ohio State University, Columbus, Ohio 2013
- *The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, Orlando, Florida 2012
- *Southern California Functional Analysis Seminar*, Pomona College, Claremont, California 2009
- *AMS National Meeting*, San Diego, California 2008
- *Von Neumann Symposium*, UCLA, Los Angeles, California 2007
- *UCLA Summer School on Analysis and Ergodic Theory*, Lake Arrowhead, California 2006
- *New Mexico Analysis Seminar*, New Mexico State University, Las Cruces, New Mexico 2005
- *Dispersive Wave Equations*, MSRI Berkeley, California 2005
- *TULKA Seminar on Functional Calculus*, Casalmaggiore, Italy 2005
- *Harmonic Analysis and Spectral Theory*, Oberwolfach Research Institute for Mathematics, Germany 2004
- *TULKA Seminar on Evolution Semigroups*, Blaubeuren, Germany 2004
- *AMS Special Session on Banach Space Theory and Convex Geometry, AMS National Meeting*, Baltimore, Maryland 2003
- *Geometry of Banach spaces and Ramsey Theory*, Fields Institute, Toronto, ON, Canada 2002
- *Thematic Program on Asymptotic Geometric Analysis*, PIMS at the University of British Columbia, Vancouver, BC, Canada 2002

### SYNERGISTIC ACTIVITIES

- Co-organizer of the Special Session on Ergodic Theory and Dynamical Systems (Special Session #126) at the 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan July 5-9, 2018
- Faculty advisor for the CCNY Sky Watch Astronomy Club 2015-Present
- Member of the CLAS Faculty Council 2015-2018
- Member of Recruiting, Mentoring and Prize Committee 2016-Present  
(in charge of the Travel Award: <http://math.sci.cuny.cuny.edu/pages?name=Travel+Award>)
- Member of the Calculus Committee 2011-Present
- Co-organizer of the Special Session on Ergodic Theory and Dynamical Systems (Special Session #23) at the National Meeting of the AMS in Atlanta, GA Jan 4-7, 2017
- Supervisor of the online homework system used by all sections of Math 20100 2011-2018
- Supervisor for Math 32300 2015-Present
- Developed a full set of video lectures for Math 20100 (available at <http://tamara.cuny.cuny.edu/teaching.html>). Spring 2014

## TEACHING EXPERIENCE

- Spring 2023
  - Math 37500: Elements of Probability Theory
  - Math A9801: Independent Study
- Spring 2022 – Fall 2022 no teaching (sabbatical year)
- Fall 2021
  - Math 21200: Calculus II with Introduction to Multivariable Functions
  - Math 32400: Advanced Calculus II
- Spring 2021
  - Math 32300: Advanced Calculus I
  - Math 31003: Independent Study
- Fall 2020
  - Math 19500: Precalculus
  - Math 32300: Advanced Calculus I
  - Math 31002: Independent Study
- Spring 2020
  - Math 39200: Linear Algebra and Vector Analysis for Engineers
  - Math 32300: Advanced Calculus I
- Fall 2019
  - Math 21200: Calculus II with Introduction to Multivariable Functions
- Spring 2019
  - Math 32300: Advanced Calculus I
  - Math 32400: Advanced Calculus II
- Fall 2018
  - Math 39100: Methods of Differential Equations
- Spring 2018 (no teaching assignment due to maternity leave)
- Fall 2017
  - Math 20200: Calculus II
- Fall 2016
  - Math 32300: Advanced Calculus I
  - Math 31002: Independent Study
- Spring 2016
  - Math 20100: Calculus I Hybrid
  - Math 31001: Independent Study
  - Math 31003: Independent Study
- Fall 2015
  - Math 32300: Advanced Calculus I
  - Math 20100: Calculus I Hybrid
  - Math B9802: Independent Study
  - Math 30300: Honors III
- Spring 2015
  - Math A4500: Dynamical Systems

- Fall 2014 (no teaching assignment due to maternity leave)
- Spring 2014
  - Math 20100: Calculus I Hybrid
- Fall 2013
  - Math 20100: Calculus I Hybrid
  - Math 20200: Calculus II
- Spring 2013
  - Math 39100: Methods of Differential Equations
  - Math 20100: Calculus I Hybrid
- Fall 2012
  - Math 20100: Calculus I Hybrid (2 sections)
- Spring 2012
  - Math 39100: Methods of Differential Equations (2 sections)
  - Math 20100: Calculus I (2 sections)
- Fall 2011
  - Math 20200: Calculus II (2 sections)
  - Math 36500: Elements of Combinatorics
- Spring 2011
  - Math 39100: Methods of Differential Equations
  - Math 20200: Calculus II
  - Math 20100: Calculus I (2 sections)
- Fall 2010
  - Math 20200: Calculus II (2 sections)
  - Math 20100: Calculus I