KATARZYNA WYCZESANY

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Research interests

Asymptotic geometric analysis, convex geometry, functional analysis, optimal transport theory, information theory, probability theory

Academic Appointments

Jan. 2023 - present	**Carnegie Mellon University**, United States Zeev Nehari Visiting Assistant Professor, Dept. of Mathematical Sciences
Sept. 2022 - Dec. 2022	**ICERM and Brown University**, United States "Harmonic Analysis and Convexity" Semester Postdoctoral Fellow
Nov. 2020 - Aug. 2022	**Tel Aviv University**, Israel Postdoctoral Fellow, School of Mathematical Sciences

Education

Oct. 2016 - Oct. 2020	**University of Cambridge**, United Kingdom Ph.D. in Pure Mathematics, Cambridge Centre for Analysis Supervisor: Prof. W. Timothy Gowers Thesis: *Topics in high-dimensional geometry and optimal transport*
Oct. 2014 - Jul. 2016	**Technical University of Berlin**, Germany M.Sc. in Mathematics, Berlin Mathematical School Supervisor: Prof. Martin Henk Thesis: *The Log-Brunn-Minkowski Inequality*
Oct. 2011 - Jul. 2014	**University of Warsaw**, Poland B.Sc. in Mathematics Supervisor: Dr Michał Wojciechowski (IMPAN) Thesis: *Littlewood-Paley Theory and Marcinkiewicz Multiplier Theorem for Spherical Harmonics*

List of publications

- W. T. Gowers, **K. Wyczesany**, *High-dimensional tennis balls*, Combinatorial Theory, vol 2, 2022.

- S. Artstein-Avidan, S. Sadovsky, **K. Wyczesany**, *A Rockafellar-type theorem for non-traditional costs*, Advances in Mathematics, vol 395, 2022.

- S. Artstein-Avidan, S. Sadovsky, **K. Wyczesany**, *Optimal measure transportation with respect to non-traditional costs*, Calculus of Variations and Partial Differential Equations, vol 62, 2023.

- W. T. Gowers, **K. Wyczesany**, *A counterexample to a strengthening of a question of V. Milman*, Annales Henri Lebesgue, Volume 6, 2023.

- S. Artstein-Avidan, S. Sadovsky, **K. Wyczesany**, *A zoo of dualities*, The Journal of Geometric Analysis 33 (238), 2023.

- N. Glover, T. Tkocz, **K. Wyczesany**, *Stability of polydisc slicing*, Mathematika, vol 69 (4), 2023.

- X. He, T. Tkocz, **K. Wyczesany**, *A Sharp Gaussian Tail Bound for Sums of Uniforms*, arXiv:2305.06235, 2023, to appear in the Israel Journal of Mathematics.

Expository writing and conference proceedings

- A. Kausamo, L. De Pascal, **K. Wyczesany**, *60 years of cyclic monotonicity: a survey*, arXiv:2308.07682, 2023, submitted.

- **K. Wyczesany**, *Optimal Transport and a Unified Perspective on Set Dualities*, Research highlight on mathinstitutes.org

- **K. Wyczesany**, *A unified perspective on Set Dualities*, ICERM Newsletter (Spring 2023, p. 12)

- **K. Wyczesany**, *Optimal transport with respect to costs attaining infinite values*, Oberwolfach Reports, Volume 18, No. 4 (2021), pp. 3187–3266

Awards, grants and fellowships

2023	Recipient of the 2023 AMS-Simons Travel Grant (funding for two years)
Jan.-Apr. 2021	Invited participant in the Hausdorff trimester program *The Interplay between High-Dimensional Geometry and Probability*, Hausdorff Research Institute for Mathematics, Bonn, Germany (due to Covid held online)
Dec. 2018	Oberwolfach Leibniz Graduate Student (OWLG)
2016 - 2020	Cambridge Centre for Analysis and EPSRC scholar
2014 - 2016	Excellence scholarship founded by the German Research Foundation, awarded by the Berlin Mathematical School
2011 - 2014	A scholarship for top students in a program *Mathematics at the University of Warsaw* funded by the European Union and the Ministry of Science
2010 - 2011	The Prime Minister Scholarship for excellence (Poland)

Invited conference and seminar talks

Nov. 2023	*Harmonic Analysis and Convexity* workshop, Banff, Canada
Jun. 2023	*Convex Geometry -Analytic Aspects*, Cortona, Italy
Jun. 2023	Analysis Seminar, University of Florence, Italy
Jun. 2023	Analysis Seminar, University of Edinburgh, Scotland
Mar. 2023	Center for Nonlinear Analysis Seminar, Carnegie Mellon University, Pittsburgh, US
Mar. 2023	AMS Spring Southeastern Sectional Meeting, Atlanta, US
Feb. 2023	Online Ergodic Theory & Analysis (=ETA) Seminar

Dec. 2022	Convex geometric analysis research seminar, New York City University and Courant Institute, New York, US
Dec. 2022	Geometry and Analysis Seminar, Columbia University, New York, US
Nov. 2022	Semester Seminar, ICERM, Providence, US
Nov. 2022	Online Asymptotic Geometric Analysis (AGA) Seminar
Sept. 2022	Probability and Analysis Webinar (online)
Jul. 2022	AMS-SMF-EMS Joint International Meeting: *Special Session on Quantitative Geometry* of Transportation Metrics, Grenoble, France
Jun. 2022	Functional Analysis Seminar, Sorbonne University, Jussieu, Paris, France
Dec. 2021	*Convex Geometry and its Applications*, Oberwolfach Research Institute for Mathematics, Germany
Dec. 2021	Online Banach and Metric Space Geometry seminar, Texas A&M
Nov. 2021	Asymptotic Geometric Analysis Seminar, Tel Aviv University, Israel
Oct. 2021	*Interaction Between Partial Differential Equations and Convex Geometry*, BIRS-IASM Workshop (online)
Nov. 2020	Online Asymptotic Geometric Analysis (AGA) Seminar
Jun. 2020	Online Functional Analysis Seminar, University of Warsaw & IMPAN
Jan. 2020	*Congress of Young Researchers RSME*, Castellón, Spain
Dec. 2019	*Workshop in Convexity and Geometric Aspects of Harmonic Analysis*, Georgia Tech, Atlanta, US
Nov. 2019	Analysis Seminar, Cardiff University, Cardiff, Wales
Nov. 2019	C.A.K.E Seminar, University of Cambridge, United Kingdom
Feb. 2018	*Annual Symposium of the Trinity Mathematical Society*, Cambridge, United Kingdom

Research visits

Jul. 2023	Research visit by invitation of Matthieu Fradelizi and Gustave Eiffel University, Paris, France
Mar. 2023	Research visit by invitation of Elisabeth Werner, Case Western Reserve University, Cleveland, US
May 2022	A monthly research visit in Paris by invitation of Matthieu Fradelizi, Gustave Eiffel University, Paris, France
Jun. 2019	Research visit in Tel Aviv by invitation of Shiri Artsein-Avidan, Tel Aviv University, Israel
Feb. 2019	Research visit in Tel Aviv by invitation of Shiri Artsein-Avidan, Tel Aviv University, Israel

Teaching experience

Fall 2023	Lecturer, Carnegie Melon University
	• 21-355 Principles of Real Analysis I
	• 21-120 Differential and Integral Calculus
Spring 2023	Lecturer, Carnegie Melon University
	• 21-111 Differential Calculus (Spring 2023),
Mich. 2017	Supervision, University of Cambridge
	• Part IB Analysis and Topology
Mich. 2018	Supervision, University of Cambridge
	• Part II Linear Analysis
Summer 2019	Cambridge Immerse Education Instructor
Summer 2018	Cambridge Immerse Education Instructor
2016	Instructor, Berlin International College
	• Subjects: Elementary Mathematics, Linear Algebra, Analysis
2013-2014	Teaching assistant at the University of Warsaw
	• Analysis I.1 and I.2

Outreach and service

Nov 2023	Graduate seminar talk, Carnegie Mellon University
2023-present	Unofficial mentorship of Zoe Wellner, a graduate student at Carnegie Mellon University
2023-present	Women and gender minority meetings, Carnegie Mellon University
Mar. 2023	Women in Math symposium, Carnegie Mellon University, US
2022-present	Co-organiser of the Probability and Analysis Webinar
2022-present	Member of Association for Women in Mathematics
2021	'Reporter' of the *Convex Geometry and its Applications* meeting *Oberwolfach Reports* Volume 18, No. 4 (2021), pp. 3187–3266
Dec. 2018	Co-examiner of undergraduate admissions, Sidney Sussex College, University of Cambridge
2018-2019	Welfare officer at Sidney Sussex College, Cambridge University
2017-2018	Director for the Part III Seminars, Faculty of Mathematics, University of Cambridge
2017	Co-organizer of a Cambridge Analysts Knowledge Exchange (C.A.K.E) Seminar

Conference participation

Jul. 2023	*200 Years of Trinity Combinatorics*, University of Cambridge, United Kingdom
Jun. 2023	BIRS-IMAG workshop *Geometric Inequalities, Convexity and Probability*, Granada, Spain
Jun. 2022	*OLE: geOmetry, anaLysis & convExity*, University of Sevilla, Spain
Jun. 2022	*Phenomena in High Dimension* conference, Institut Henri Poincaré, Paris, France
Jun. 2021	*Convex Geometry and Random Matrices in High Dimensions* Spring School, Hausdorff Center for Mathematics, Bonn, Germany (Online)
Mar. 2021	*Current trends in Convex Geometry* conference (Online)
Nov. 2019	North British Functional Analysis Seminar, University of Nottingham, United Kingdom
Sept. 2019	*Convex, Discrete and Integral Geometry* conference, Jena, Germany
Jul. 2019	*Asymptotic Geometric Analysis* conference, Tel Aviv University and the Dead Sea Research Institute, Israel
Dec. 2018	*Convex Geometry and its Applications*, Oberwolfach, Germany
Sept. 2018	*New perspectives on Convex Geometry* Summer School, Castro Urdiales, Spain
Nov. 2017	MSRI Workshop on *Geometric functional analysis and applications*, Berkeley, US
Aug. 2017	MSRI Introductory Workshop: *phenomena in high dimensions*, Berkeley, US
Jun. 2017	*Convex, Discrete and Integral Geometry Conference*, Bedlewo, Poland
Jun. 2017	*Jörgshop on Convex and Discrete Geometry*, Berlin, Germany
Mar. 2017	*Oxbridge PDE Conference 2017*, Oxford, United Kingdom
Jul. 2016	*7th European Congress of Mathematics*, Berlin, Germany
Dec. 2015	*Winter School on Compressed Sensing*, Berlin, Germany
Feb. 2014	*Follow the Flow: analysis, numerics and applications*, Białka Tatrzańska, Poland

Languages

Polish - native, English - fluent, German - conversational