

CURRICULUM VITAE

Galyna V. Livshyts

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AFFILIATIONS:

- **2010-2015:** Ph.D. student and TA, Kent State University.
- **2015-** : Assistant Professor, Georgia Institute of Technology.

FIELDS OF INTEREST:

Asymptotic geometric analysis and Convex Geometry; applications of Convexity to Probability theory; applications of Harmonic analysis to Convexity; Brunn-Minkowski theory; Discrete and combinatorial geometry.

EDUCATION:

- 2015 Ph.D., Kent State University, Kent, OH, USA.
Advisor: Professor Artem Zvavitch.
Dissertation: On the geometry of log-concave measures.
- 2010 M.Sc. (with honors), Kharkiv National University of Karazin, Kharkiv, Ukraine.
Advisor: Professor Borys V. Novikov.
Thesis: Modules over some matrix rings.
- 2009 B.Sc., Kharkiv National University of Karazin, Kharkiv, Ukraine.
Advisor: Professor Borys V. Novikov.
Thesis: On the sets of small defects in \mathbb{Z} .

VISITING POSITIONS:

- IMA, Minnesota, one month general membership, April 2015.
- University of Florence, Italy, one month visit, January 2016.
- Postdoc, MSRI program in Geometric and Functional Analysis and applications, August-December 2017.

PUBLICATIONS:

- G. V. Livshyts, *Maximal surface area of a convex set in R^n with respect to exponential rotation invariant measures*, Journal of Mathematical Analysis and applications, 404, (2013) 231-238.
http://people.math.gatech.edu/~glivshyts6/livshyts_exponential.pdf.
- G. V. Livshyts, *Maximal surface area of a convex set in R^n with respect to log concave rotation invariant measures*, GAFA seminar notes, 2116, (2014), 355-383.
<http://arxiv.org/pdf/1308.4202v2.pdf>.
- G. V. Livshyts, *Maximal surface area of a convex polytope in R^n with respect to log-concave rotation invariant measures*, Adv. Appl. Math., vol. 70, 54-69, (2015).
http://people.math.gatech.edu/~glivshyts6/Livshyts_polytopes.pdf.
- G. V. Livshyts, A. Marsiglietti, P. Nayar, A. Zvavitch, *On the Brunn-Minkowski inequality for general measures with applications to new isoperimetric type-inequalities*, Transactions of the AMS, electron: April 11, 2017.
<http://arxiv.org/abs/1504.04878>.
- G. V. Livshyts, P. Paouris, P. Pivovarov, *On sharp bounds for marginal densities of product measures*, Israel Journal of Mathematics, (2016), 216(2), 877-889.
<http://arxiv.org/abs/1507.07949>
- G. V. Livshyts, K. Tikhomirov, *Randomized coverings of a convex body with its homothetic copies, and illumination*, to appear in Proceedings of the AMS.
<http://arxiv.org/pdf/1606.08876v1.pdf>

- A. Colesanti, G. V. Livshyts, A. Marsiglietti, *On the stability of Brunn-Minkowski type inequalities*, Journal of Functional Analysis 273 (2017), no. 3, 1120-1139.
<https://arxiv.org/pdf/1606.06586.pdf>
- G. V. Livshyts, *An extension of Minkowski's theorem and its applications to questions about projections for measures*, to appear in Advances in Math.
<https://arxiv.org/pdf/1607.06531.pdf>
- G. V. Livshyts, K. Tikhomirov, *Cube is a strict local maximizer for the illumination number*, submitted.
<https://arxiv.org/abs/1710.05070>
- A. Colesanti, G. V. Livshyts, *Uniqueness of a smooth convex body with a uniform cone volume measure in the neighborhood of a ball*, in preparation for submission.
<https://arxiv.org/pdf/1710.10708.pdf>

IN PREPARATION:

- B. Jaye, G. V. Livshyts, G. Paouris, P. Pivovarov, *Minimizing Renyi entropy of the sum of independent random vectors*, in preparation.
- G. V. Livshyts, *On the Gaussian concentration inequality and its relation to the Gaussian surface area*, a letter (not intended for publication).
http://people.math.gatech.edu/~glivshyts6/Livshyts_concentration.pdf

SYNERGISTIC ACTIVITIES:

- Reviewer for JMAA, Journal of Discrete Math, Advances in applied math, Journal of Functional analysis, Periodica Mathematica Hungarica, IEEE International Symposium on Information Theory.
- Reviewer for Math Reviews.
- Organizer for Virginia Tech Open math contest at Georgia Tech in 2016.
- Organizer for Putnam exam at Georgia Tech in 2016.
- Participant of the Early Career Peer Group for Women in Probability, organized by Tai Melcher.
- Panelist at the 2017 Field of Dreams conference.

CONFERENCES AND SEMINARS ORGANIZED:

- Georgia Tech Analysis seminar (jointly with Shahaf Nitzan).
- Georgia Tech High-dimensional seminar (jointly with Konstantin Tikhomirov).
- Session in Probabilistic and Analytic tools in Convexity at the AMS spring southeastern sectional meeting, Athens, GA, March 5-6 2016, jointly with Elisabeth Werner and Joe Fu;
- 34th Southeastern Analysis Meeting, Atlanta, GA, March 23-25 2018, jointly with Michael Lacey, Wing Li, Shahaf Nitzan.
<https://www.math.gatech.edu/hg/item/597350>
- AIM workshop “Symmetry in geometric inequalities”, May 20-24 2019, jointly with Elisabeth Werner and Karoly Böröczky.
- Seminar for women in Mathematics in Northern Georgia, January 2018-..., jointly with Yulia Babenko.
<https://pwp.gatech.edu/wiming/>

TEACHING EXPERIENCE:**Georgia Institute of Technology**

- 3215: Introduction to Probability and Statistics (undergraduate), Fall 2015.
- 6241: Probability I (graduate), Fall 2016.
- 4802: Putnam problem solving (undergraduate), Fall 2016.
- 6242: Probability II (graduate), Spring 2017.
- 8803: Special topics course in High-dimensional geometry and probability (graduate), Spring 2018.
- 1554: Linear algebra (undergraduate), Spring 2018.
- 4802: Putnam problem solving (undergraduate), Fall 2018.
- 4801: Undergraduate seminar, Fall 2018.
- 4317: Analysis I (undergraduate), Fall 2018.

Kent State University

- Basic Math Concepts II, Spring 2014.
- Trigonometry, Fall 2012.
- Trigonometry, Spring 2012.
- Algebra for Calculus, Fall 2011.
- Basic Algebra III, Spring 2011.
- Basic Algebra II, Spring 2011.
- Basic Algebra I, Fall 2010.

Kharkiv, Ukraine

- Mathematics teacher at High School $N^{\circ}45$, 2009-2010.

ADDITIONAL TEACHING ACTIVITIES:

At Georgia Tech:

- Co-advising Ph.D. student Marcel Celaya.
- Member of Ph.D. committees for Scott Spencer (2017) and Yanxi Hou (2017).

At Kent State:

- Served as a referee at Choose Ohio First competition for undergraduate students, Youngstown, OH, Spring 2013.
- Spoke at the Choose Ohio First meeting for undergraduate students, Kent, OH, Winter 2013. My talk was titled “Are all the triangles equilateral?”
- Advised students Alexandra Sobieska, Alexander Kokinov and Christopher Walker on a project “Knights, liars and scales” for Choose Ohio First program for undergraduate students, Kent, OH, Spring 2012.
- Assisted Professor Jenya Soprunova on a project “Lattice polytopes” of REU program at Kent State, Kent, OH, Summer 2011.
- Taught at the mathematical circles for the Fifth and Sixth grades at High School $N^{\circ}45$, Kharkiv, Ukraine, 2009-2010.

AWARDS/HONORS:

- NSF CAREER DMS1753260, 2018-2023.
- AMS Simons travel grant for junior researchers, 2017-2020.
- AWM-NSF Travel Grant, Fall 2015.
- Kent State University Fellowship, Spring 2015.
- Kent State University Graduate Senate Domestic Travel Grant, Fall 2014.
- AMS Travel Award for Graduate students, Fall 2014.
- Kent State University Graduate Senate International Travel Grant, Spring 2014.
- Kent State University Graduate Senate Domestic Travel Grant, Spring 2014.
- Kent State University Graduate Senate Domestic Travel Grant, Spring 2013.
- Kent State University Graduate Senate International Travel Grant, Spring 2013.

- Kent State University Graduate Senate Domestic Travel Grant, Fall 2012.

UPCOMING CONFERENCES, SEMINARS, TRIPS:

- Workshop “Convex Geometry and its Applications”, Mathematisches Forschungsinstitut Oberwolfach, Germany, 12/2018.
- Plenary talk at “Mid-Atlantic Analysis meeting”, Virginia Tech, Blacksburg, VA, 11/2018.
- Workshop “Functional inequalities in Probability”, University of Connecticut, Mansfield, CT, 11/2018.
- SUMIFRAS, Texas A&M University, College Station, TX, 8/2018.
- Workshop “Asymptotic and affine geometric analysis”, Rio de Janeiro, Brazil, 7/2018.
- Visit Tel-Aviv Univeristy, 6/2018.
- TSIMF workshop “Recent Advances in Convex Geometry and Geometric Functional Analysis”, Sanya, Hainan, China, 5/2018.
- Bristol University Probability seminar, Bristol, UK, 5/2018.

TALKS:

- BIRS workshop “Emerging trends in Geometric and Functional Analysis”, Banff, Canada, 3/2018.
- AMS session “Probability in Convexity and Convexity in Probability”, Columbus, OH, 3/2018.
- Georgia Tech Analysis seminar, Atlanta, GA, 01/2018.
- MSRI postdoc seminar, Berkeley, CA, 12/2017.
- Field of Dreams conference, St. Louis, MO, 11/2017.
- MSRI workshop “Connections for Women: geometry and probability in high dimensions”, Berkley, CA, 8/2017.
- Banach center workshop “Convex, Discrete and Integral Geometry”, Bedlewo, Poland, 6/2017.
- Workshop on Information-Theoretic Inequalities, Newark, DE, 4/2017.
- Analysis seminar, Georgia Institute of Technology, Atlanta, GA, 4/2017.
- Colloquium, CSUN, Northridge, CA, 2/2017.
- Colloquium, UMass Boston, 2/2017.
- Analysis seminar, Vanderbilt University, Nashville, TN, 1/2017.
- Colloquium, Florida State University, Tallahassee, FL, 1/2017.
- Special session “Women in Analysis, in honor of Cora Sadosky”, AMS Joint Meeting, Atlanta, GA, 1/2017.
- Colloquium, Ohio State University, Columbus, OH, 11/2016.

- Internet seminar of the women in probability group, 11/2016.
- Special session on Discrete Structures: Analysis and Applications (IMA Reunion), AMS Sectional Meeting, University of St. Thomas, Minneapolis, MN, 10/2016.
- Workshop on Analytic Aspects of Convexity, Rome, Italy, 10/2016.
- Invited talk at Analysis seminar, Kennesaw State University, GA, 9/2016.
- Workshop in Analysis and Probability, Concentration Week on Geometric Functional Analysis, Texas A&M University, College Station, TX, 7/2016.
- Session in Convex and Discrete geometry, CMS meeting, Edmonton, AB, Canada, 6/2016.
- A talk on illumination and covering problems at the Georgia Tech graduate student seminar, Atlanta, GA, 4/2016.
- Stochastic seminar, Georgia Institute of Technology, Atlanta, GA, 3/2016.
- Invited talk at Analysis seminar, University of Florence, Florence, Italy, 1/2016.
- Invited talk at Analysis and Probability mini-symposium, ICMS, Edinburgh, Scotland, 12/2015.
- Workshop “Convex Geometry and its Applications”, Mathematisches Forschungsinstitut Oberwolfach, Germany, 12/2015.
- Workshop “Analytic and probabilistic techniques in modern convex geometry”, University of Missouri, Columbia, MO, 11/2015.
- Invited talk at Analysis Seminar, Brown University, Providence, RI, 10/2015.
- Invited talk at Stochastic Seminar, Georgia Institute of Technology, Atlanta, GA, 6/2015.
- Invited talk at Analysis Seminar, Case Western Reserve University, Cleveland, OH, 5/2015.
- IMA Postdoc seminar, IMA, Minneapolis, MN, 4/2015.
- Invited talk at Analysis Seminar, Texas A&M University, College Station, TX, 2/2015.
- Invited talk at Analysis Seminar, Ohio State University, Columbus, OH, 1/2015.
- Invited talk at Analysis Seminar, University of Missouri, Columbia, MO, 12/2014.
- Colloquium, Georgia Institute of Technology, Atlanta, GA 11/2014.
- AMS meeting, San Francisco, CA 10/2014.

- Invited talk at Analysis Seminar, University of Rochester, NY, 10/2014.
- Invited talk at Asymptotic Geometric Analysis Seminar, Tel Aviv, Israel, 5/2014.
- GSS symposium, Kent, OH, 4/2014.
- BIRS Workshop “Geometric Tomography and Harmonic Analysis”, Banff, AB, Canada, 3/2014.
- AMS meeting, St. Louis, MO, 10/2013.
- Measure Theory Seminar, Kent, OH, 10/2013.
- Measure Theory Seminar, Kent, OH, 4/2013.
- GSS symposium, Kent, OH, 4/2013.
- Third Ohio River Analysis Meeting, Cincinnati, OH, 3/2013.
- Graduate Student Mathematics Seminar, Kent, OH, 2/2013.
- AMS meeting, Akron, OH, 10/2012.
- Measure Theory Seminar, Kent, OH, 3/2012.
- Graduate Student Mathematics Seminar, Kent, OH, 4/2011.
- Measure Theory Seminar, Kent, OH, 2/2011.
- Nonlinear Analysis Seminar, Kent, OH, 11/2010.
- Measure Theory Seminar, Kent, OH, 10/2010.
- Department of Mathematical Sciences, Kharkiv, Ukraine, 6/2010.
- Kharkiv University Algebra Seminar, Kharkiv, Ukraine, 11/2009.
- Department of Mathematical Sciences, Kharkiv, Ukraine, 6/2009.
- Ukrainian annual Algebra conference for undergraduate and graduate students, Kharkiv, Ukraine, 5/2009.
- Kharkiv University research competition for undergraduate students, Kharkiv, Ukraine, 2/2008.

OTHER CONFERENCES PARTICIPATED:

- Kent State Informal Analysis seminar, Kent, OH, 2/2018.
- MSRI workshop “Geometric functional analysis and applications”, Berkley, CA, 11/2017.
- MSRI workshop “Introductory Workshop: phenomena in high dimensions”, Berkley, CA, 8/2017.
- BIRS workshop “Recent Advances in Discrete and Analytic Aspects of Convexity”, Banff, Canada, 5/2017.
- MSRI workshop “Recent developments in Harmonic Analysis”, Berkley, CA, 5/2017.
- AIM workshop “Entropy power inequalities”, San Jose, California, 5/2017.

- Conference “Harmonic Analysis And Geometry Of Fractal Sets”, Columbus, OH, 2/2017.
- Conference “Infinite Dimensional Analysis: Celebrating Richard Aron’s Work and Impact”, Kent, OH, 10/2016.
- Conference on Convex and Discrete Geometry on the occasion of Peter M. Gruber’s 75th birthday, Vienna, Austria, 7/2016.
- Conference on Geometric Functional Analysis in honor of Nicole Tomczak-Jaegermann, Edmonton, Canada, 5/2016.
- Kent State Informal Analysis Seminar, Kent, OH, 4/2016.
- Kent State Informal Analysis Seminar, Kent, OH, 11/2015.
- CBMS series, Kent State University, Kent, OH, 8/2015.
- CBMS series, North Dakota State University, Fargo, ND, 7/2015.
- Workshop “Analytic Tools in Probability and Applications”, IMA, Minneapolis, MN, 4/2015 (presented a poster).
- Workshop “Information Theory and Concentration Phenomena”, IMA, Minneapolis, MN, 4/2015 (presented a poster).
- Kent State Informal Analysis Seminar, Kent, OH, 3/2015.
- Kent State Informal Analysis Seminar, University of Michigan, MI, 10/2014 (presented a poster).
- Conference “Stochastic processes and high dimensional probability distributions”, Euler Institute, Saint-Petersburg, Russia, 6/2014 (presented a poster).
- Kent State Informal Analysis Seminar, Kent, OH, 4/2014.
- Kent State Informal Analysis Seminar, Kent, OH, 3/2014 (presented a poster).
- AIM Workshop “Sections of convex bodies”, Palo Alto, CA, 8/2013.
- Winter school “Convexity and probability in high dimensions”, Paris, France, 1/2013.
- Kent State Informal Analysis Seminar, Kent, OH, 10/2012.
- AIM Workshop “Invariants in convex geometry and Banach space theory”, Palo Alto, CA, 8/2012.
- IMA Conference for women in Analysis and PDE, Minneapolis, MN, 6/2012.
- Kent State Informal Analysis Seminar, Kent, OH, 4/2012.
- Kent State Informal Analysis Seminar, Kent, OH, 11/2011.
- CBMS lecture series by Professor Hillel Furstenberg, Kent, OH, 6/2011.
- Kent State Informal Analysis Seminar, Kent, OH 4/2011.