

# CURRICULUM VITAE

January 17, 2017

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**Date of Birth:** March 12, 1979

## ACADEMIC DEGREES:

- Ph.D. in Mathematics, University of Missouri-Columbia, May 2005  
Thesis Advisor: Professor Loukas Grafakos  
Thesis: Distributional Estimates for Multilinear Operators
- Specialist (equivalent of M.Sc.) in Mathematics, degree with honors  
Kharkiv National University, Ukraine, June 2001  
Thesis advisor: Professor Vladimir Kadets  
Master's thesis: The Daugavet Property in the Spaces of Vector Valued Functions

## PAST AND CURRENT AFFILIATIONS:

- Georgia Institute of Technology, Atlanta, GA  
Visiting Assistant Professor, August 2005 - May 2008
- Fields Institute, Toronto, ON, Canada  
Visiting Member, January 2008 - April 2008
- Institute for Advanced Study, Princeton, NJ  
Visiting Researcher, September 2008 - May 2009
- University of South Carolina, Columbia, SC  
Tenure-track Assistant Professor, May 2008 - May 2012
- University of Minnesota, Minneapolis, MN  
Visiting Assistant Professor, August 2011- May 2012
- University of Minnesota, Minneapolis, MN  
Tenured Associate Professor, May 2012 - present

## RESEARCH INTERESTS:

Harmonic Analysis, Functional Analysis, Discrepancy Theory, Approximation Theory, Probability, Partial Differential Equations

## AWARDS and FUNDING

- National Science Foundation grant. Project “Discrepancy Theory and Analysis”, DMS 1101519 (after transfer DMS-1260516), Analysis Program, 07/01/2011-06/30/15, \$ 105,240.00
- National Science Foundation grant. Project “The Discrepancy Theory and the Small Ball Conjecture”, DMS 0801036, Analysis Program, 07/01/2008-06/30/11, \$102,437.00
- Coauthor of the successful proposal and a coorganizer of the Semester Program on “High-dimensional Approximation” at the Institute for Computational and Experimental Research in Mathematics (ICERM, Brown University), Fall 2014.
- 2012 Best Paper Award in the Journal of Complexity (for the paper “Fibonacci sets and symmetrization in discrepancy theory”, with V. Temlyakov and R. Yu).
- Co-PI (with V. Sverak and S. Mayboroda) on the National Science Foundation grant DMS-1304998 “The 16th Riviere-Fabes Symposium” 2013, \$ 22,950.00; (with N. Krylov and S. Mayboroda) DMS-1362668 “The 17th Riviere-Fabes Symposium” 2014, \$23,850; (with M. Keel and S. Mayboroda) “The 18th Riviere-Fabes Symposium” 2015, submitted
- Wrote a successful proposal for a grant to organize the SQuaREs (research in groups) program *Directional discrepancy* at the American Institute of Mathematics, Palo Alto, CA, in May 2010, May 2011, and October 2012. (with W. Chen, X. Ma, J. Pipher, and C. Spencer)
- “Soros Student” grants # GSU061099 (1996-97) and # GSU081170 (1998)
- 2nd place at the Ukrainian Mathematics Olympiad for High School Students (1994 and 1996)

## PAPERS (published, accepted)

- *One bit sensing, discrepancy, and Stolarsky principle*, Mat. Sbornik, 2016, accepted. (with M. Lacey)
- *The two-dimensional small ball inequality and binary nets*, Journal of Fourier Analysis and Appl., 2016, accepted. (with N. Feldheim)
- *Diophantine approximation and directional discrepancy of rotated lattices*, Transactions of AMS, **368**, 2016, 3871–3897. (with X. Ma, J. Pipher, C. Spencer)
- *BMO and exponential Orlicz space estimates of the discrepancy function in arbitrary dimension*, Journal d'Analyse Math., 2015, accepted. (with L. Markhasin)
- Chapter *Roth's Orthogonal Function Method in Discrepancy Theory and Some New Connections* in the book “Panorama of Discrepancy Theory”, Lecture Notes in Math **2107** Springer Verlag, 2014. pp. 71–158.
- *Discrepancy theory and harmonic analysis* in the book “Uniform Distribution and Quasi-Monte Carlo Methods”, De Gruyter, 2014. pp 45–62.
- *Dichotomy results for the  $L^1$  norm of the discrepancy function*, Journal of Math Analysis and Applications **410**, 2013. (with G. Amirkhanyan and M. Lacey)
- *The  $L^2$  discrepancy of irrational lattices*, Monte Carlo and Quasi-Monte Carlo Methods 2012, Springer Proceedings in Math. and Stat. **65**, Springer Verlag, 2013.
- *The supremum norm of the discrepancy function: recent results and connections*, Monte Carlo and Quasi-Monte Carlo Methods 2012, Springer Proceedings in Math. and Stat. **65** Springer Verlag, 2013. (with M. Lacey)
- *On the scientific work of Konstantin Ilyich Oskolkov*, Recent Advances in Harmonic Analysis and Applications: In Honor of Konstantin Oskolkov (Springer Proceedings in Mathematics & Statistics), Springer Verlag, 2013, pp. 3–22. (with L. De Carli, A. Petukhov, A. Stokolos, and B. Wick)
- *The  $L_2$  discrepancy of two-dimensional lattices*, Recent Advances in Harmonic Analysis and Applications: In Honor of Konstantin Oskolkov (Springer Proceedings in Mathematics & Statistics), Springer Verlag, 2013, pp. 63–78. (with V. Temlyakov and R.Yu)
- *Fibonacci sets and symmetrization in discrepancy theory*, (with V. Temlyakov, R.Yu), Journal of Complexity **28** (2012) 18–36.  
**Co-winner of 2012 Best Paper Award in the Journal of Complexity.**

- *Roth's orthogonal function method in discrepancy theory*, Uniform Distribution Theory 6 (2011), no. 1, 143–184.
- *Directional discrepancy in two dimensions*, (with X.Ma, J.Pipher, C.Spencer), The Bulletin of London Math. Soc., (2011) **43** (6), 1151–1166.
- *A three-dimensional signed small ball inequality*, (with M.Lacey, I.Parissis, A.Vagharshakyan), “Dependence in Probability, Analysis and Number Theory”, Walter Philip memorial volume, 73–87, Kendrick Press, Heber City, UT, 2010.
- *Cyclic shifts of the Van der Corput Set*, Proc. AMS, **137** (2009), 2591-2600.
- *Exponential Squared Integrability of the Discrepancy Function in Two Dimensions*, Mathematika, **55**, (2009), 1-2, 1–27. (with M.Lacey, I.Parissis, A.Vagharshakyan)
- *Composition of Haar Paraproducts: The Random Case*, Analysis Math, **35:1** (2009). (with M.Lacey, X.Li, B.Wick)
- *On the Signed Small Ball Inequality*, Online Journal of Analytic Combinatorics, **3** (2008). (with M. Lacey and A. Vagharshakyan)
- *On the Small Ball Inequality in All Dimensions*, J. Funct. Anal. **254** (2008), no. 9, 2470–2502. (with M.Lacey and A.Vagharshakyan)
- *On the Small Ball Inequality in Three Dimensions*, Duke Math. J. **143** (2008), no. 1, 81–115. (with M.Lacey)
- *The distributional estimates for the bilinear Hilbert transform*, Journal of Geometric Analysis **16** (2006) 563-583. (with L. Grafakos)
- *A new way of looking at distributional estimates; applications for the bilinear Hilbert transform*, Proceedings of the 7th International Conference on Harmonic Analysis and Partial Differential Equations [El Escorial, 2004], Collectanea Mathematica (2006), 141–169. (with L. Grafakos)
- *The interplay between distributional estimates and boundedness in harmonic analysis*, Bulletin of London Math. Soc., **37** (2005) 427-434. (with L. Grafakos)
- *Narrow operators the Daugavet property for ultraproducts*, Positivity, **9** (2005) 45-62. (with V. Kadets, R. Shvidkoy, D. Werner)
- *Narrow operators on vector-valued sup-normed spaces*, Illinois J. Math., **45** (2002) 120-143. (with V. Kadets, R. Shvidkoy, G. Sirotkin, D. Werner)

## PAPERS IN PROGRESS (submitted, preprints, in preparation)

- *Geodesic distance Riesz energy on the sphere*, 2016, submitted. (with F. Dai)
- *Stolarsky principle and energy optimization on the sphere*, 2016, submitted. (with F. Dai and R. Matzke)
- *Random tessellations, restricted isometric embeddings, and one bit sensing*, 2015, submitted. (with M. Lacey)
- *Estimates of the discrepancy function in exponential Orlicz spaces*, 2014, submitted. (with G. Amirkhanyan and M. Lacey)
- *On the small ball inequality*, in progress. (with N. Feldheim)
- *The Littlewood conjecture and uniform distribution*, in progress. (with J. Pipher, C. Spencer)
- *On some sets with minimal  $L^2$  discrepancy*, in progress..
- *Lacunary sequences: Sidon's theorem and the Peres-Schlag method*, in progress.

## TALKS:

### 2016

- “Stolarsky-type identities, energy optimization, uniform tessellations, and one-bit sensing”, workshop “Optimal and Random Point Configurations: From Statistical Physics to Approximation Theory”, Institut Henri Poincaré, Paris, France, Jun-Jul 2016.
- “Points on a sphere: Stolarsky-type identities, energy optimization, uniform tessellations, and one-bit sensing”, workshop on Function Spaces and High-dimensional Approximation, CRM, Barcelona, Catalunya, May 2016.
- “Tessellations of the sphere, one-bit sensing, restricted isometries, and discrepancy”, AMS sectional meeting, Athens, GA, March 2016.
- “Geometric discrepancy”, AIM workshop “Hereditary discrepancy and factorization norms”, San Jose, CA, Feb 2016.
- “Introduction to research” seminar, University of Minnesota, Feb 2016.

### 2015

- “Methods of harmonic analysis in discrepancy theory” (four 1.5-hr lectures), Winter School on Complexity and Discrepancy, Traunkirchen, Austria, Nov-Dec 2015.
- “Small ball inequality and low discrepancy constructions”, ”Diophantine approximation and related topics” conference, Aarhus, Denmark, July 2015.
- “Small ball inequality and low discrepancy constructions”, Johannes-Kepler Universität, Linz, Austria, June 2015.
- “Sphere tessellations and discrepancy”, Information-based Complexity program, Banach Center, Bedlewo, Poland, April 2015.
- “Discrepancy theory and analysis”, Duke University, Durham, NC, February 2015.

## 2014

- “Discrepancy function estimates in various function spaces”, Analysis Seminar, Brown University, Providence, RI, November 2014.
- “The  $L^2$  discrepancy of Fibonacci (and other) lattices”, Program in “Minimal energy point sets, lattices, and designs”, Erwin Schrödinger Institute, Vienna, Austria, October 2014.
- Tutorial talk “Relationship of Discrepancy with harmonic analysis, approximation theory and probability”, ICERM, Brown University, Providence RI, October 2014.
- “Uniform distribution, lacunary Fourier series, and Riesz products”, Hausdorff Institute, Bonn, Germany, May 2014.
- “The  $L^1$  dichotomy for the discrepancy function estimates”, 11th International Conference on Monte-Carlo and Quasi-Monte Carlo Methods in Scientific Computing, MCQMC 2014, Leuven, Belgium, April 2014.
- “Simultaneous Diophantine approximation and lacunary Fourier series”, AMS Sectional Meeting, Albuquerque, NM, April 2014.

## 2013

- “On some distributions with low  $L^2$  discrepancy”, International conference “Nonlinear approximations and applications” dedicated to 60th birthday of V. Temlyakov, Steklov Institute, Moscow, Russia, October 29 - November 1, 2013.

- *Invited talk*, “Discrepancy theory and harmonic analysis”, workshop “Uniform distribution and quasi-Monte Carlo methods”, Johann Radon Institute for Computational and Applied Mathematics (RICAM), Linz, Austria, October 14-18, 2013.
- *Invited talk*, “Small ball inequalities and discrepancy”, Oberwolfach workshop “Uniform Distribution Theory and Applications”, Oberwolfach, Germany, September 29 - October 5, 2013
- *Invited talk*, “Discrepancy estimates, small ball inequalities, and hyperbolic cross approximations”, workshop “Discrepancy, Numerical Integration and Hyperbolic Cross Approximation”, Hausdorff Center for Mathematics, University of Bonn, September 23-27, 2013
- *Invited talk* “Discrepancy theory and harmonic analysis”, Palanga Conference in Combinatorics and Number Theory, Palanga, Lithuania September 1-7, 2013
- *Plenary lecture*, “Discrepancy theory and analysis”, Second International Conference “Mathematics in Armenia. Advances and Perspectives”, Tsaghkadzor, Armenia, August 24-31, 2013.
- *Simultaneous Diophantine approximation and rotated lattices*, Georgia Analysis Symposium, University of Georgia, Athens, GA, March 1-2, 2013.

## 2012

- *Discrepancy theory and the small ball inequality*, Analysis seminar, Charles University, Prague, Czech Republic, December 2012.
- *Discrepancy theory, harmonic analysis, and the small ball inequality*, Analysis seminar, Toulouse, France, November 2012.
- *Discrepancy theory and the small ball inequality*, Analysis seminar, Université Paris-Sud XI, Orsay, France, November 2012.
- *Geometric Discrepancy Theory and Analysis*, Analysis seminar, North Dakota State University, Fargo, ND, October 30, 2012.
- *Discrepancies with respect to various set systems*, AMS Fall Central Sectional Meeting, University of Akron, Akron, OH, October 20-21, 2012.
- *Harmonic analysis and irregularities of distribution*, Function spaces seminar, Beijing Normal University, Beijing, China, July 2012.

- *Small deviation probabilities and entropy estimates in mixed smoothness spaces*, Function spaces seminar, Beijing Normal University, Beijing, China, July 2012.
- *Recent results in discrepancy theory and the small ball inequality*, Function spaces seminar, Beijing Normal University, Beijing, China, July 2012.
- *Uniform distribution theory*, Graduate student seminar, Beijing Normal University, Beijing, China, July 2012.
- *Directional discrepancy*, 3rd International Conference on Uniform Distribution Theory (UDT2012), Congress Center of the Slovak Academy of Sciences, Smolenice, Slovakia June 25 - June 29, 2012.
- *Discrepancy theory and the small ball inequality*, Analysis seminar, Friedrich-Schiller-Universität, Jena, Germany, June 20, 2012.
- *The analysis of the van der Corput set*, Analysis seminar, University of Missouri, Columbia, MO, April 3, 2012.
- *Fourier analysis and uniform distribution*, Special Session in Harmonic Analysis and Applications, AMS Spring Central Section Meeting, Lawrence, KS, March 30–April 1, 2012.
- *Discrepancy theory*, joint Number Theory and Analysis seminar, Kansas State University, Manhattan, KS, March 29, 2012.
- *$L^2$  discrepancy and symmetrization*, 10th International Conference on Monte-Carlo and Quasi-Monte Carlo Methods in Scientific Computing, MCQMC 2012, Sydney, Australia, February 2012.
- *Small ball probabilities for the Brownian sheet, uniform distributions, and related problems*, Probability seminar, University of Minnesota, Minneapolis, MN, February 3, 2012.
- *Uniformly distributed sequences*, MathClub seminar, University of Minnesota, Minneapolis, MN, January 26, 2012.

## 2011

- *$L^2$  discrepancy and symmetrization*, ICREA Conference on Approximation Theory and Fourier Analysis, Centre de Recerca Matemàtica (CRM), Bellaterra, Barcelona, Spain, December 12-16, 2011
- *Harmonic Analysis Methods In Discrepancy Theory And Related Problems*, Analysis seminar, University of Wisconsin, Madison, WI, November 1, 2011.



- Colloquium talk *The small ball inequality in analysis, discrepancy, probability, and approximation theory*, University of Minnesota, Minneapolis, MN, September 22, 2011.
- *Low-discrepancy sets and harmonic analysis*, International Conference “Harmonic Analysis and Approximations V”, Tsaghkadzor, Armenia, September 10-17, 2011.
- *Discrepancy and Fourier analysis*, 8th International ISAAC Congress 2011, Moscow, Russia, August 22-27, 2011.
- *Low-discrepancy sets and harmonic analysis*, conference “Complex analysis and its applications” devoted to the 70th anniversary of A.F.Grishin, Kharkiv, Ukraine, August 15-18, 2011.
- *Cubature formulas, low-discrepancy sets, and harmonic analysis*, Approximation Theory and Harmonic Analysis Workshop, Kennesaw State University, Kennesaw, GA, May 14-15, 2011.
- Colloquium talk *Irregularities of distribution and small ball probabilities*, Purdue University, West Lafayette, IN, March 23, 2011.
- *On the small ball inequality in harmonic analysis, probability, approximation theory, and irregularities of distribution*, Measure Theory seminar, Kent State University, Kent, OH, February 15, 2011.
- Colloquium talk *Geometric Discrepancy Theory and Analysis*, Kent State University, Kent, OH, February 15, 2011.
- Colloquium talk *Analysis and Irregularities of Distribution*, Georgia State University, Atlanta, GA, February 2, 2011.
- Colloquium talk *Geometric Discrepancy Theory and Analysis*, University of Rochester, Rochester, NY, January 27, 2011.

## 2010

- *On sets with low extremal and  $L^2$  discrepancies*, 2010 Fall Eastern Sectional Meeting, Syracuse, NY, October 2-3, 2010
- *On some sets with minimal  $L^2$  discrepancy*, 9th International Conference on Monte-Carlo and Quasi-Monte Carlo Methods in Scientific Computing, Warsaw, Poland, August 15-20, 2010.

- Plenary speaker, *On Roth's orthogonal function method in discrepancy theory*, 2nd International Conference on Uniform Distribution Theory, Strobl, Austria, July 5 - 9, 2010.
- Geometric Discrepancy and Harmonic Analysis, Analysis seminar, University of Helsinki, Helsinki, Finland, June 24, 2010.
- Invited talk *Directional discrepancy*, Harmonic Analysis: A Retrospective Workshop, Fields Institute, Toronto, ON, Canada, May 31-June 4, 2010.
- Organizer and participant of the SQuaREs (research in groups) program *Directional discrepancy*, American Institute of Mathematics, Palo Alto, CA, May 3-7, 2010.
- *Dyadic analysis in discrepancy theory*, 2010 Spring Western Section Meeting, Albuquerque, NM, April 17-18, 2010
- *Discrepancy and Numerical Integration*, Compressed Sensing Seminar, University of South Carolina, Columbia, SC, April 5, 2010 (talk given in the framework of the graduate class on Numerical Integration taught by V. Temlyakov).
- *Directional discrepancy*, Mini-conference on harmonic analysis, University of South Carolina, Columbia, SC, February 12, 2010.
- Colloquium talk *Geometric Discrepancy Theory and Analysis*, Georgia Southern University, Statesboro, GA, January 22, 2010.

## 2009

- *Discrepancy Theory and Analysis*, Analysis seminar, University of South Carolina, Columbia, SC, September 2, 2009.
- *New results in geometric discrepancy*, seminar talk, Universit degli Studi di Milano - Bicocca, Milan, Italy, June 22, 2009.
- *Geometric Discrepancy and Harmonic Analysis*, Analysis Seminar, Centre de Recerca Matemàtica, Barcelona, Spain, May 25, 2009.
- Participant of the Harmonic Analysis, Geometric Measure Theory and Quasi-conformal Mappings Research Programme at the Centre de Recerca Matemàtica, Barcelona, Spain, May-June, 2009.

- Invited one hour talk "Upper bounds in discrepancy theory" at the Arkansas Spring Lecture Series "New Results on the Discrepancy Function and Related Results", University of Arkansas, Fayetteville, Arkansas, April 16-18, 2009.
- *Geometric Discrepancy and Harmonic Analysis*, Analysis Seminar, Cornell University, Ithaca, NY, March 2009.
- *Geometric Discrepancy and Harmonic Analysis*, Modern Analysis Seminar, University of Missouri, Columbia, MO, February 17, 2009.
- *Geometric Discrepancy and Harmonic Analysis*, Analysis Seminar, Brown University, Providence, RI, February 9, 2009.

## 2008

- *Littlewood-Paley Theory, the Small Ball Inequality, and the Discrepancy Estimates*, invited one hour talk, Workshop "Small ball inequalities in analysis, probability, and irregularities of distribution, American Institute of Mathematics, Palo Alto, CA, December 10, 2008
- *Some Properties of the van der Corput Set*, Invited one hour talk, Mini-conference on Harmonic Analysis, Auburn University, Auburn, AL, November 22, 2008.
- *Geometric Discrepancy and Harmonic Analysis*, Analysis Seminar, Georgia Institute of Technology, Atlanta, GA, November 20, 2008.
- *Geometric Discrepancy and Harmonic Analysis*, Function Theory Seminar, Purdue University, West Lafayette, IN, October 29, 2008.
- *The Discrepancy Theory and Small Ball Inequalities*, Postdoctoral Seminar, Institute for Advanced Study, Princeton, NJ, September 23, 2008.
- *Discrepancy, Small Ball Probabilities, and Entropy Estimates* 2008 Spring Central Section 1038th AMS Meeting, Bloomington, IN, April 5-6, 2008.
- *The Discrepancy Theory: Classical and New Results*, University of Oregon, Eugene, OR, February 25, 2008.
- *The Discrepancy Theory: Classical and New Results*, Central Michigan University, Mt. Pleasant, MI, February 8, 2008.
- *The Discrepancy Theory: Classical and New Results*, University of South Carolina, Columbia, SC, February 5, 2008.

- *The Discrepancy Theory: Classical and New Results*, Lehigh University, Bethlehem, PA, January 15, 2008.
- Participated in the Thematic Program on New Trends in Harmonic Analysis, Fields Institute, University of Toronto, Toronto, Ontario, Canada, January-April, 2008.

## 2007

- *The Discrepancy Theory and Small Ball Inequalities*, Functional Analysis Seminar, Kharkiv National University, Kharkiv, Ukraine, December 24, 2007.
- *On the Small Ball Probabilities for the Brownian Sheet and the Theory of Uniform Distribution*, Probability Seminar, Steklov Institute of Mathematics of Russian Academy of Sciences, St.Petersburg, Russia, December 21, 2007.
- *The Small Ball Inequality and the Discrepancy Function in higher dimensions*. AMS 2007 Fall Western Section Meeting, Albuquerque, NM, October 13-14, 2007.
- *Lower bounds for the star-discrepancy in all dimensions*. Mini-conference on Discrepancy Theory and Harmonic Analysis. University of South Carolina, Columbia, SC, September 29-30, 2007
- *On the  $L^\infty$  norm of the Discrepancy Function*. Invited one hour talk at the Workshop on Discrepancy Theory and Related Areas, Villa Cipressi, Varenna, Italy, June 18-22, 2007.
- *The Discrepancy Theory: Classical and New results*, Graduate student seminar *Research Horizons*, Georgia Institute of Technology, Atlanta, GA, April 4, 2007. (talk aimed at graduate students)
- *The Small Ball Problem in Higher Dimensions*. Modern Analysis Seminar, University of Missouri, Columbia, Missouri, March 20, 2007.
- *The Small Ball Inequality and the Discrepancy Function in three dimensions*. AMS 2007 Spring Southeastern Section Meeting, Davidson, NC, March 3-4, 2007.

## 2006

- *The Small Ball Inequality in Three Dimensions*. Analysis Seminar, University of South Carolina, Columbia, SC, November 16, 2006.
- *The Small Ball Inequality in Three Dimensions*. Sixth Prairie Analysis Seminar, University of Kansas, Lawrence, Kansas, October 13-14, 2006.
- *Distributional estimates for multilinear operators*. Harmonic and Geometrical Analysis with Applications to PDE, Sevilla, Spain, August 14-18, 2006.

- *Distributional estimates for multilinear operators.* AMS Sectional Meeting, Florida International University, Miami, Florida, April 1-2, 2006.

**before 2006**

- *Distributional estimates for multilinear operators.* Fourth Prairie Analysis Seminar, University of Kansas, Lawrence, Kansas, November 12-13, 2004.
- *Distributional estimates for multilinear operators.* ShowMe Analysis Meeting 2004, University of Missouri-Columbia Columbia, Missouri, June 3-5, 2004.
- *Matrix analysis and spectral properties of linear differential operators.* 6-th TULKA Internet Seminar Operator matrices and delay semigroups, Heinrich- Fabri Institut, Blaubeuren, June 2003.
- *Sectorial operators without an  $H^\infty$ -calculus.* 5-th TULKA Internet Seminar Functional Calculus and semigroups Heinrich-Fabri Institut, Blaubeuren, June 2002.

# TEACHING

## TEACHING EXPERIENCE AND ACTIVITIES:

- University of Minnesota: Differential Equations and Applications, Calculus 2, Honors Analysis I & II, Numerical Methods II (evaluations: **5.38** out of 6), Graduate Real Analysis (evaluations: **5.83** out of 6), Honors Calculus.
- University of South Carolina: Graduate Complex Analysis (evaluations: **4.71** out of 5), Calculus 1 (evaluations: **4.76** & **4.78**), Calculus 2 (evaluations: **4.28** & **4.53** out of 5), Vector Analysis (evaluations: **4.64** out of 5), Undergraduate Fourier Analysis and Wavelets (evaluations: **4.45** out of 5), Differential Equations and Applications (evaluations: **4.6** out of 5).
- Georgia Institute of Technology: Calculus 2, Calculus 3, Analysis 1, Analysis 2
  - ◇ Average evaluations: **4.67** out of 5
  - ◇ “*Thank a Teacher*” Award, Spring 2006.
- University of Missouri-Columbia: College Algebra, Elements of Calculus, Calculus for Business Students, Finite Mathematics, Advanced Calculus
  - ◇ “*Green Chalk*” Teaching Award, Spring 2004.
- Advising undergraduate mathematics majors (starting Fall 2013) and participating in the advisers meetings, committee on undergraduate mathematics scholarships. (University of Minnesota)
- Serving on the curriculum committee (University of Minnesota, 2012-2013). Meeting with graduate directors of schools of Economics, Statistics, Biostatistics to discuss the service courses of the mathematical curriculum.
- Advising undergraduate mathematics majors. (South Carolina, 2009-2011)
- Serving as the faculty advisor of Pi Mu Epsilon and Gamecock Math Club: in charge of organizing the meetings, Sudoku contest night, public lectures, Graduate school information night etc. (South Carolina, 2009-present)
- Organization and preparation of the High School Math Contest, University of South Carolina, 2010-2011:
  - ◇ Chaired the committee in charge of preparing the written test.
  - ◇ Judging and proctoring.
  - ◇ Presenting solutions to high school teachers.

- Teaching mathematical clubs for middle school and high school students. Organizing, mentoring, and judging various mathematical competitions for high school students. (Kharkiv, Ukraine, 1996-2001)
- Giving talks aimed at undergraduate and graduate students:
  - ◊ “The Discrepancy Theory: Classical and New results” *Research Horizons graduate student seminar*, Georgia Tech, April 2007
  - ◊ “Discrepancy and Numerical Integration”, *addendum to the graduate class on Numerical Integration*, University of South Carolina, April 2010
  - ◊ “Uniformly distributed sequences”, *Math Club undergraduate seminar*, University of Minnesota, Minneapolis, MN, January 26, 2012
  - ◊ “Uniform distribution theory”, Graduate student seminar, Beijing Normal University, Beijing, China, July 2012
  - ◊ Tutorial talk “Relationship of Discrepancy with harmonic analysis, approximation theory and probability”, ICERM, Brown University, Providence RI, October 2014.
  - ◊ “Methods of harmonic analysis in discrepancy theory” (four 1.5-hr lectures), Winter School on Complexity and Discrepancy, Traunkirchen, Austria, Nov-Dec 2015.
  - ◊ “Introduction to research” seminar, University of Minnesota, Feb 2016.

## MENTORING ACTIVITY

### Advised:

- Ranil Wanigasiri (University of South Carolina, MA in Mathematics, 2010)
  - Thesis “Interpolation of entire functions by integer points”
- Senior thesis: Xiaoyang Ji (2012); Yaoling Wang, Anton Okhrimchuk (2014); Da Teng (2015 expected)
- Serve as a faculty advisor for mathematics majors (UMN 2013-present; USC 2009-2011)

### Mentored the work of and collaborated with the following graduate students:

- Armen Vagharshakyan (Georgia Tech, PhD 2010; subsequently a postdoc at Brown and Kent State)
  - 4 joint papers; served on Vagharshakyan’s PhD committee
- Xiaomin Ma (Brown University, PhD 2011)
  - 2 joint papers.

- Rui Yu (University of South Carolina, PhD 2012)  
– 2 joint papers; serving on Yu’s PhD committee
- Lev Markhasin (Friedrich-Schiller-Universität, Jena, Germany, PhD 2013)  
– 1 joint paper, served on Markhasin’s PhD committee.
- Gagik Amirkhanyan (Georgia Tech, PhD 2014)  
– 2 joint papers; served on Amirkhanyan’s PhD committee.

**Postdoctoral mentoring:**

- Naomi Feldheim (IMA postdoc, 2014-15; PhD Tel-Aviv University, 2014)  
– 1 joint paper submitted, 1 in preparation

## SERVICE

**CONFERENCES ORGANIZED:**

- Member of the scientific committee of the 12th International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing (MC-QMC 2016), Stanford, Aug 2016.
- Workshop in Discrepancy Theory, Villa Cipresi, Varenna, Italy, June 2016.
- CRM Research Program “Classical and Modern Aspects of Constructive Approximation and Harmonic Analysis”, CRM, Barcelona, Spain, Spring-Summer 2016 (member of the organizing committee)
- ICERM Semester Program on “High-dimensional Approximation”, ICERM, Brown University, Providence, RI, September 8 - December 5, 2014
  - ◊ Member of the organizing committee of the Semester Program
  - ◊ Organizer of the workshop “Discrepancy Theory”
- Special MAA Invited Paper Session on “Uniform Distribution, Discrepancy, and Related Field” at the Joint AMS-MAA Meeting, Baltimore, MD, 2014.
- The 16th, 17th, and 18th Rivière–Fabes Symposia on Analysis and PDE, University of Minnesota, 2013-2015 (member of the organizing committee)
- SquaREs Research in Groups Program, American Institute of Mathematics, Palo Alto, CA, May 2010, May 2011, October 2012. (with J. Pipher, X. Ma, W. Chen, C. Spencer, A. Vagharshakyan)



- Special Session on *Harmonic Analysis and Applications* at the 2011 Southeastern Sectional Meeting #1068, Georgia Southern University, Statesboro, GA, March 12-13, 2011. (with A. Stokolos, L. DeCarli, B. Wick)
  - ◊ Co-edited the proceedings volume “Recent Advances in Harmonic Analysis and Applications: In Honor of Konstantin Oskolkov” (Springer Proceedings in Mathematics & Statistics), Springer Verlag, 2013 (editors: D. Bilyk, L. De Carli, A. Petukhov, A. Stokolos, and B. Wick)
- Mini-conference “Analysis: connections and applications”, University of South Carolina, Columbia, SC, April 26-27, 2011
  - talks accessible to graduate students from various areas of mathematics
  - attracted 5 prominent outside speakers
- Special Session on *Harmonic Analysis* at the 2010 Fall Eastern Sectional Meeting #1062, Syracuse University, Syracuse, NY, October 2–3, 2010. (with S. Mayboroda)
- 26th Southeastern Analysis Meeting, Georgia Institute of Technology, Atlanta, GA, March 25-28, 2010 (with B. Wick, M. Lacey)
- Mini-conference on Harmonic Analysis, University of South Carolina, Columbia, SC, February 12, 2010

#### COMMITTEES:

- Graduate admissions committee ((University of Minnesota, 2013-present)
- *Curriculum committee*: working on mathematical curriculum changes, consulting with the DGAs of other departments on mathematical service courses (University of Minnesota, 2012-present)
- *Rivière–Fabes Symposium committee* (University of Minnesota, 2012-2013)
- *Meetings of undergraduate advisers and staff, committee on undergraduate mathematics scholarships* (University of Minnesota, 2013-present)
- *Events committee*: organizing and coordinating departmental events (University of South Carolina, 2009-2011)
- *Pi Mu Epsilon/Gamecock math club committee*: serving as faculty advisor, working with undergraduates, organizing mathematical events for students (University of South Carolina, 2009-2011)

- *High School Math Contest committee:* chaired the committee in charge of preparing the problems for the written test; actively participated in judging, proctoring; presented solutions to high school teachers (University of South Carolina, 2010-11)
- *Qualifying exam committee:* chaired the committee in charge of grading the qualifying exam (University of South Carolina, January 2011)

## **OTHER SERVICE ACTIVITIES:**

- Refereeing: Journal of Mathematical Analysis and Applications, Journal of Complexity, Uniform Distribution Theory, Springer Proceedings in Mathematics, SIAM Journal on Discrete Mathematics, Proceedings of AMS, Austrian Science Fund etc.
- Chaired the PDE Seminar (Fall 2012, University of Minnesota)
- Took an active part in running Analysis/PDE seminars: attended, gave talks, brought outside speakers (University of Missouri, Georgia Tech, University of South Carolina, University of Minnesota)
- Advising undergraduate mathematics majors on the mathematical curriculum (University of Minnesota, Fall 2013-present; University of South Carolina, 2009-2011)
- Served as a Faculty Judge for graduate student presentations in the Graduate Student Day (University of South Carolina, April 2, 2010)
- Organized and sponsored a trip of several USC graduate students to the Southeastern Analysis meeting in Atlanta, GA (March 2010)

## **REFERENCES:**

- Michael Lacey, Georgia Institute of Technology, lacey@math.gatech.edu (collaborator)
- Jill Pipher, Brown University, jpipher@math.brown.edu (collaborator)
- Vladimir Temlyakov, University of South Carolina, temlyak@math.sc.edu (collaborator)