Aleksandr Reznikov

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Professional Preparation

Diploma of Mathematician with honor (Masters Degree); obtained from St.-Petersburg State University, Russia in 2009
Adviser: V. P. Havin
Topic of Master Thesis: On sharp constants in the Paneyah–Logvinenko–Sereda theorem.

Ph.D. in Mathematics, Michigan State University, in 2014
Adviser: Alexander Volberg
Topic of Thesis: Weighted norm inequalities for Calderòn-Zygmund Operators.

Postdoc: Vanderbily University, 2014–2017
Mentor: Edward Saff

Employment

2017–Present - **Assistant Professor in Florida State University, Tallahassee, FL**
2014–2017 - **Assistant Professor (NTT) in Vanderbilt University, Nashville, TN**
2009–2014 - **Graduate student and TA in Michigan State University, MI, USA (advisor: A. Volberg)**
2008–2009 - **Teaching Assistant in St.-Petersburg State University, Russia**

Principal fields of interest

1. Riesz energy, minimizing configurations; Riesz polarization, covering radius and separation of extreme configurations. Applications to crystallization.
2. Random configurations on manifolds and properties of their distributions.
3. Norm estimates for Calderon-Zygmund operators in one measure and two measures setting.

Publications

Published and accepted papers

1. Nazarov, A. I.; Reznikov, A. B. **On the existence of an extremal function in critical Sobolev trace embedding theorem** J. Funct. Anal. 258 (2010), no. 11, 3906–3921;
2. Nazarov A., Reznikov A., **Attainability of infima in the critical Sobolev trace embedding theorem on manifolds** — American Mathematical Society Translations–Series 2 Advances in the Mathematical Sciences 2010; 252 pp; hardcover Volume: 229;

3. Reznikov, Alexander **Sharp constants in the Paneyah-Logvinenko-Sereda theorem** C. R. Math. Acad. Sci. Paris 348 (2010), no. 3-4, 141–144;

4. Reznikov, Alexander **Sharp weak type estimates for weights in the class A_{p_1,p_2}**, Rev. Mat. Iberoam. **29** (2013), no. 2, 433–478; doi 10.4171/rmi/726; arXiv:1105.4848v1;

5. Nazarov, F., Reznikov, A., Treil, S., Volberg, A. **A Bellman function proof of the L^2 bump conjecture**, J. Anal. Math. 121 (2013), 255–277; arXiv:1202.2406;

6. Beznosova O., Reznikov A. **Equivalent definitions of dyadic Muckenhoupt and Reverse Hölder classes in terms of Carleson sequences, weak classes, and comparability of dyadic $L\log L$ and A_∞ constants**, Rev. Mat. Iberoam. 30 (2014), no. 4, 1191–1236; arXiv:1201.0520;

7. Nazarov F., Reznikov A., Volberg A. **The proof of A_2 conjecture in a geometrically doubling metric space**, Indiana Univ. Math. J. 62 (2013), no. 5, 1503–1533; arXiv:1106.1342;

8. Beznosova O., Reznikov A. **Sharp estimates involving A_∞ and $L\log L$ constants, and their applications to PDE**, St. Petersburg Math. J. 26 (2015), no. 1, 27–47; arXiv:1107.1885;

9. Cruz-Uribe D., Reznikov A., Volberg A. **Logarithmic bump conditions and the two weight boundedness of Calderón-Zygmund operators**, Adv. Math. 255 (2014), 706–729; arXiv:1112.0676;

10. Rey, G., Reznikov A., **Extremizers and sharp weak-type estimates for positive dyadic shifts**, Adv. Math. 254 (2014), 664–681;

11. Reznikov A., Saff, E., **The covering radius of randomly distributed points on a manifold**, Int. Math. Res. Not. IMRN 2016, no. 19, 6065–6094;

12. Reznikov A., Saff E., Vlasiuk O., **A minimum principle for potentials with application to Chebyshev constants**, Potential Anal. 47 (2017), no. 2, 235–244;

13. Brauchart, J., Reznikov, A., Saff, E., Sloan, I., Wang, Y., Womersley, R., **Random Point Sets on the Sphere — Hole Radii, Covering, and Separation**, Exp. Math. 27 (2018), no. 1, 62–81;

14. Borodachov S., Hardin D., Reznikov A., Saff E., **Optimal discrete measures for Riesz potentials**, to appear in Trans. Amer. Math. Soc.;

15. Reznikov A., Saff E., Volberg A., **Covering and separation of Chebyshev points for non-integrable Riesz potentials**, to appeat in J. Complexity;

16. Hardin D., Reznikov A., Saff E., Volberg A., **Local properties of Riesz minimal energy configurations and equilibrium measures**, to appear in Int. Math. Res. Not.

Submitted papers

17. Nazarov F., Reznikov A., Vasyunin V., Volberg A., **On weak weighted estimate of martingale transform and dyadic shift**, submitted to Analysis & PDE;

18. Beznosova O., Reznikov A., **Dimension free properties of strong Muckenhoupt and Reverse Hölder weights for Radon measures**, submitted to J. Geom. Anal.

Papers in preparation

19. Reznikov A., Vlasiuk O., **Riesz energy on self-similar sets**.

Recent Seminar and Conference Talks

1. Harmonic analysis meeting in Toulouse, France, 2012
   Topic: Separated bump conjecture and boundedness of Calderon-Zygmund operators.

2. 21st Summer St. Petersburg Meeting in Mathematical Analysis, Russia, 2012
   Topic: Bump conditions, two weight Muckenhoupt conjecture and its weak version.

3. Measure theory seminar in Kent State University, 2012
   Topic: Bump conjecture for Calderon-Zygmund operators.

4. Analysis Seminar in Georgia Tech, 2013
   Topic: One sided bump conditions and two weight boundedness of Calderon-Zygmund operators.

5. The Third Ohio River Analysis Meeting, 2013
   Topic: One sided bump conditions and weak and strong two weight boundedness of Calderón-Zygmund operators.

6. Analysis Seminar in St. Petersburg Department of V.A.Steklov Institute of Mathematics, 2013
   Topic: Two weight estimates for Calderón-Zygmund operators, and the one-sided bump conjecture.

7. Analysis Seminar in University of Missoury, 2013
   Topic: Solution to the A_1 conjecture.

8. Calderón-Zygmund Analysis Seminar in University of Chicago, 2013
   Topic: Solution to the A_1 conjecture.

9. Analysis Seminar in University of Rochester, 2014
   Topic: Solution to the A_1 conjecture.

10. Colloquium in University of Alabama, 2014
    Topic: Covering Properties of Random Points.

11. The Fifth Ohio River Analysis Meeting, 2015
    Topic: Covering properties of random points.

12. Midwestern Workshop on Asymptotic Analysis, 2015
    Topic: Covering properties of random points (slides available at `http://math.iupui.edu/~maxyatts/workshop/Slides/reznikov.pdf`).

13. AMS sectional meeting in Athens, GA, 2016
    Topic: Asymptotics of maximal discrete polarization on the unit cube.

14. Discrepancy meeting at Villa Cipressi in Varenna, Italy, 2016
    Topic: Discretizing sets via maximal discrete polarization.

15. 12th International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing, Stanford, 2016
    Topic: Covering radii of various point configurations distributed over the unit sphere.

16. Conference in Harmonic Analysis in Honor of Michael Christ, University of Wisconsin-Madison, 2016
    Topic: Optimal Riesz Potentials for Discrete Measures.

17. Prairie Analysis Seminar, University of Kansas, 2017
    Topic: Distributing points over a manifold via maximal discrete polarization

18. The Seventh Ohio River Analysis Meeting, University of Cincinnatti, 2017
    Topic: Separation and covering properties of greedy energy points.

Events organized

1. AMS Special Session on Women in Analysis (In Honor of Cora Sadosky), 2017.
2. Math Circle at Vanderbilt, `http://my.vanderbilt.edu/mathcircle`.
3. Computational Analysis Seminar, Vanderbilt University

Awards

Academic awards

1. First "Young mathematician prize", awarded by St.Petersburg Department of V.A.Steklov Institute of Mathematics of the Russian Academy of Sciences.
2. Herbert T. Graham Scholarship Award, Michigan State University.

Teaching awards

3. Graduate Teaching Assistant Award, Michigan State University.

Service and Review

Reviewer for

- Canadian Mathematical Bulletin;
- Constructive Approximation;
- Math Reviews
- Monatshefte für Mathematik;
- New York Journal of Mathematics;
- Proceedings El Escorial 2012;
- Proceedings of AMS;
- Publicacions Matemàtiques;
- St. Petersburg Mathematical Journal;
- Springer Volume in Honor to Cora Sadosky;
- The Annales de la Faculté des Sciences de Toulouse;