Eyvindur Ari Palsson

CONTACT INFORMATION

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McBryde Hall
Virginia Tech
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APPOINTMENTS

Assistant Professor, August 2016 – Present
Virginia Tech

Assistant Professor, July 2014 – July 2016
Williams College

Visiting Assistant Professor, July 2011 – June 2014
University of Rochester

EDUCATION

Cornell University, Ithaca, New York — August 2006 – May 2011

- Ph.D. in Mathematics — Awarded May 2011
- M.S. in Mathematics — Awarded May 2009
- Advisor: Dr. Camil Muscalu, Department of Mathematics

University of Iceland, Reykjavík, Iceland — August 2003 – May 2006

- B.S. in Mathematics
- Icelandic equivalent of Summa Cum Laude

RESEARCH INTERESTS

Harmonic Analysis, Geometric Measure Theory, Additive Number Theory and Partial Differential Equations.

PUBLICATIONS

1. A. Iosevich, E. A. Palsson, *An improved dimensional threshold for the angle problem*, (2018), submitted, arXiv:1807.05465.
2. K. Cordwell, A. Epstein, A. Hemmady, S. J. Miller, E. A. Palsson, A. Sharma, S. Steinerberger, Y. N. T. Vu , *On algorithms to calculate integer complexity*, (2017), submitted, arXiv:1706.08424.
3. J. DeWitt, K. Ford, E. Goldstein, S. J. Miller, G. Moreland, E. A. Palsson, S. Senger, *Dimensional lower bounds for Falconer type incidence and point configuration theorems*, (2016), accepted for publication in Journal d'Analyse, arXiv:1612.00539.
4. R. F. Durst, M. Hlavacek, C. Huynh, S. J. Miller, E. A. Palsson, *Classification of crescent configurations*, (2016), submitted, arXiv:1610.07836.
5. R. F. Durst, C. Huynh, A. Lott, S. J. Miller, E. A. Palsson, W. Touw, G. Vriend, *The inverse gamma distribution and Benford's law*, (2016), submitted, arXiv:1609.04106.
6. A. Greenleaf, A. Iosevich, B. Liu, E. A. Palsson, *An elementary approach to simplexes in thin subsets of Euclidean space*, (2016), submitted, arXiv:1608.04777.
7. A. Epstein, A. Lott, S. J. Miller, E. A. Palsson, *Optimal point sets determining few distinct triangles*, Integers, **18** (2018), #A16. arXiv:1609.00206
8. R. Dorward, P. Ford, E. Fourakis, P. Harris, S. J. Miller, E. A. Palsson, H. Paugh, *Individual gap measures from generalized Zeckendorf decompositions*, Uniform Distribution Theory, **12** (2017), no. 1, 27–36. arXiv:1509.03029

9. R. Dorward, P. Ford, E. Fourakis, P. Harris, S. J. Miller, E. A. Palsson, H. Paugh, *A generalization of Zeckendorf's theorem via circumscribed m-gons*, Involve, **10** (2017), 125–150. arXiv:1508.07531
10. Y. Do, R. Oberlin, E. A. Palsson, *Variation-norm and fluctuation estimates for ergodic bilinear averages*, Indiana University Mathematics Journal, **66** (2017), 55–99. arXiv:1504.07134
11. A. Iosevich, M. Mourgoglou, E. A. Palsson, *On angles determined by fractal subsets of the Euclidean space via Sobolev bounds for bi-linear operators*, Mathematical Research Letters, **23** (2016), 1737–1759. arXiv:1104.5160
12. D. Burt, E. Goldstein, S. Manski, S. J. Miller, E. A. Palsson, H. Suh, *Crescent configurations*, Integers, **16** (2016), #A38. arXiv:1509.07220
13. B. Murphy, E. A. Palsson, G. Petridis, *The cardinality of sumsets: different summands*, Acta Arithmetica, **167** (2015), 375–395. arXiv:1309.2191
14. A. Greenleaf, A. Iosevich, B. Liu, E. A. Palsson, *A group-theoretic viewpoint on Erdős-Falconer problems and the Mattila integral*, Revista Matematica Iberoamericana, **31** (2015), no. 3, 799–810. arXiv:1306.3598
15. L. Grafakos, A. Greenleaf, A. Iosevich, E. A. Palsson, *Multilinear generalized Radon transforms and point configurations*, Forum Mathematicum, **27** (2015), 2323-2360. arXiv:1204.4429
16. D. Geba, A. Greenleaf, A. Iosevich, E. A. Palsson, E. Sawyer, *Restricted convolution inequalities, multilinear operators and applications*, Mathematical Research Letters, **20** (2013), 675–694. arXiv:1209.6574
17. Y. Do, R. Oberlin, E. A. Palsson, *Variational bounds for a dyadic model of the bilinear Hilbert transform*, Illinois Journal of Mathematics, **57** (2013), 105–120. arXiv:1203.5135
18. E. A. Palsson, *L^p estimates for a singular integral operator motivated by Calderón's second commutator*, Journal of Functional Analysis, **262** (2012), 1645–1678. arXiv:1110.6792
19. E. A. Palsson, *L^p estimates for a singular integral operator motivated by Calderón's second commutator*, PhD Thesis, Cornell University, May 2011.

Books Published

Punktar og Tölur, by Askell Hardarson, Eyvindur Ari Palsson and Stefan Freyr Gudmundsson. We published three volumes intended for middle school students interested in math competitions. These three books covered material not traditionally taught in Iceland.

Grants and Awards

Faculty Mentoring Proposal, 2017
a competitive grant for new Assistant Professors from Virginia Tech

Simons Foundation Collaboration Grant for Mathematicians, 2016
$35,000 available for collaboration, travel, and research expenses
to be used within the next five years.

University of Rochester Researcher Mobility Travel Grant, 2013
$5,000 available for travel.

AMS Simons Travel Grant, 2012
$4,000 available for travel to be used within the next two years.

MRC Additional Collaboration Funding, 2011
Applied for and received leftover funding from the MRC that allowed Yen Do, Richard Oberlin and myself to visit Christoph Thiele at UCLA for a week.

Conference Travel Grant, 2010, 2011
a competitive grant from Cornell University

Cornell Mathematics Department Graduate Student Teaching Award, 2009
Cornell University, for excellence in teaching

Research Travel Grant, 2009
a competitive grant from Cornell University

Bronze Medal at the International Mathematical Olympiad, 2003
Tokyo, Japan.

Colloquium Talks

Estimates for a singular integral operator motivated by Calderón's second commutator,
Colloquium, **TIFR Bangalore**, January 10, 2017.

Finite point configurations,
Department of Mathematics Colloquium, **Virginia Tech**, November 11, 2016.

Multilinear phenomena in analysis and related areas,
Department of Mathematics Colloquium, **University of Illinois at Urbana-Champaign**, December 10, 2015.

A look at the distinct distance problem and crescent configurations,
Mathematics Colloquium, **Bard College**, December 8, 2015.

Going the distance,
Mathematics and Statistics Department Colloquium, **Williams College**, October 14, 2015.

Point configurations and the Erdös distinct distance problem,
Mathematics and Statistics Department Colloquium, **Williams College**, July 1, 2015.

Finite point configurations and multilinear Radon transforms,
Department of Mathematics Undergraduate Colloquium, **Trinity College**, October 9, 2014.

Multilinear phenomena in analysis and related areas,
Department of Mathematics Colloquium, **The University of Alabama**, February 18, 2014.

Finite point configurations and multilinear Radon transforms,
Mathematics and Statistics Department Colloquium, **Williams College**, January 28, 2014.

Finite point configurations and multilinear generalized Radon transforms,
Maths Colloquium, **University of Queensland Brisbane**, June 3, 2013.

Finite point configurations and multilinear generalized Radon transforms,
Sydney-UNSW Joint Colloquium, University of Sydney, May 31, 2013.

Finite point configurations and multilinear generalized Radon transforms,
Colloquium, **University of Rochester**, May 2, 2013.

Seminar Talks

Falconer type theorems for simplices,
Analysis, Logic, and Physics Seminar, **Virginia Commonwealth University**, January 26, 2018.

Restricted convolution inequalities, multilinear operators and applications,
Analysis and Math Physics Seminar, **Virginia Tech**, October 25, 2017.

Falconer type theorems for simplices,
Analysis Seminar, **Georgia Tech**, April 12, 2017.

Falconer type theorems for simplices,
Inverse Problems and Analysis Seminar, **University of Delaware**, March 3, 2017.

Finite point configurations,
Seminar, **Indian Institute of Science, Bangalore**, January 9, 2017.

Finite point configurations,
Analysis and Arithmetic Combinatorics Seminar, **University of Georgia**, October 24, 2016.

Variational bounds for the bilinear Hilbert transform,
Applied Analysis Seminar, **Virginia Tech**, August 24, 2016.

Crescent configurations and sharpness examples for triangles,
Faculty Seminar, **Williams College**, April 8, 2016.

Finite point configurations in thin sets,
Combinatorics Seminar, **University of Rochester**, February 2, 2016.

Finite point configurations and multilinear Radon transforms,
Analysis Seminar, **Yale University**, December 1, 2015.

Finite point configurations and multilinear Radon transforms,
Mathematics Department Seminar, **Colgate University**, October 15, 2015.

Variational bounds for a dyadic model of the bilinear Hilbert transform,
Analysis Seminar, **Brown University**, March 9, 2015.

Variational bounds for the bilinear Hilbert transform,
Faculty Seminar, **Williams College**, February 27, 2015.

Variational bounds for a dyadic model of the bilinear Hilbert transform,
Analysis Seminar, **State University of New York Albany**, November 12, 2014.

Finite point configurations and multilinear Radon transforms,
Trimester Seminar, **Hausdorff Research Institute for Mathematics**, Bonn, Germany, July 29, 2014.

Multilinear phenomena in analysis and related areas,
Analysis Seminar, **University of Rochester**, November 8, 2013.

Restricted convolution inequalities, multilinear operators and applications,
Pure Mathematics Seminar, **University of Queensland Brisbane**, June 4, 2013.

Multilinear generalized Radon transforms,
Analysis Seminar, **Brown University**, November 19, 2012.

Multilinear generalized Radon transforms,
Analysis Seminar, **Indiana University Bloomington**, October 25, 2012.

Multilinear generalized Radon transforms,
Analysis Seminar, **University of Rochester**, October 19, 2012.

On multilinear generalized Radon transforms,
Analysis Seminar, **Cornell University**, March 26, 2012.

On multilinear generalized Radon transforms,
Analysis and PDE Seminar, **University of California Los Angeles**, January 13, 2012.

On multilinear generalized Radon transforms and angles,
Analysis Seminar, **University of Rochester**, December 9, 2011.

L^p estimates for a singular integral operator motivated by Calderón's Commutators, Analysis Seminar, **Georgia Tech**, December 8, 2010.

L^p estimates for a singular integral operator motivated by Calderón's Commutators, Analysis Seminar, **Cornell University**, October 25, 2010.

L^p estimates for a singular integral operator motivated by Calderón's Commutators, Analysis Seminar, **University of Rochester**, October 22, 2010.

L^p estimates for a singular integral operator motivated by Calderón's Commutators, Calderón-Zygmund Analysis Seminar, **University of Chicago**, May 3, 2010.

Conference Talks

Falconer type theorems for higher order point configurations, **Southeastern Analysis Meeting**, Georgia Tech, March 24, 2018.

Falconer type theorems for higher order point configurations, **Spring Mini Courses in Analysis and Geometry**, Louisiana State University, February 9, 2018.

Dimensional lower bounds for Falconer type incidence theorems, **Northeast Analysis Network Conference**, Syracuse University, September 23, 2017.

Falconer type theorems for simplices, **Harmonic Analysis And Geometry Of Fractal Sets**, The Ohio State University, February 4, 2017.

On a problem of Erdős and some related questions, **Paper Presentation in Geometry and Cosmology**, International Conference of TIMC in cooperation with AMS, Banaras Hindu University, Varanasi, India, December 14, 2016.

Finite point configurations, **Northeast Analysis Network Conference**, University of Rochester, September 9, 2016.

Finite point configurations, **Summer Analysis Workshop**, Oberlin College, July 9, 2016.

Finite point configurations, **Special Session on Geometric Aspects of Harmonic Analysis**, Joint Meeting of the AMS, EMS and SPM, Porto, Portugal, June 12, 2015.

Finite point configurations, **International Conference on Harmonic Analysis and Applications**, The Graduate Center of City University of New York, June 1, 2015.

Restricted convolution inequalities, multilinear operators and applications, **Harmonic Analysis to celebrate Michael Cowling's 65th**, Segovia, Spain, July 2, 2014.

Falconer type theorems for simplices, **Special Session on Harmonic Analysis and Applications**, Joint Meeting of the AMS and the RMS, Alba Iulia, Romania, June 29, 2013.

Variational bounds for a dyadic model of the bilinear Hilbert transform, **AMS Special Session on Harmonic Analysis and Convexity**, Fall Central Sectional Meeting, Akron, Ohio, October 21, 2012.

Variational bounds for a dyadic model of the bilinear Hilbert transform, **AMS Special Session on Wavelet and Frame Theoretic Methods in Harmonic Analy-**

sis and Partial Differential Equations in Memory of Daryl Geller, Fall Eastern Sectional Meeting, Rochester, New York, September 29, 2012.

On multilinear generalized Radon transforms,
AMS Special Session on Radon Transforms and Geometric Analysis (in honor of Sigurdur Helgason's 85th birthday), Joint Mathematics Meetings, Boston, Massachusetts, January 7, 2012.

L^p estimates for a singular integral operator motivated by Calderón's Commutators,
Incompressible Fluids, Turbulence and Mixing. In honor of Peter Constantin's 60th birthday., Carnegie Mellon University, Pittsburgh, Pennsylvania, October 15, 2011.

L^p estimates for a singular integral operator motivated by Calderón's Commutators,
AMS Session on Topics in Analysis, Joint Mathematics Meetings, New Orleans, Louisiana, January 9, 2011.

Posters

L^p estimates for a singular integral operator motivated by Calderón's Commutators,
Harmonic Analysis and Applications - A Conference in honor of the 70th birthday of Richard Wheeden, University of Seville, Spain, June 14 - June 18, 2010.

Expository Talks

Optimal point sets determining few distinct triangles, **Math Club**, Virginia Tech, October 31, 2017.

Patterns and algorithms, **MathBlast**, Williams College, December 14, 2015.

Patterns and algorithms, **MathBlast**, Williams College, December 8, 2014.

Finite point configurations and calculus, **Irondequoit Calculus Classes Field Trip**, University of Rochester, May 22, 2014.

Salem sets and restriction properties of Fourier transforms (two 50-minute lectures), **Summer school on Harmonic Analysis, Geometric Measure Theory and Additive Combinatorics**, Catalina Canyon Resort (California), June 25 - June 29, 2012.

A $T(1)$ theorem on product spaces (two 60-minute lectures), **Internet Analysis Seminar**, Georgia Tech (Georgia), June 11 - June 15, 2012.

Tangential boundary behavior of functions in Dirichlet-type spaces (two 60-minute lectures), **Internet Analysis Seminar**, Sea Palms Resort on St. Simon's Island (Georgia), June 13 - June 17, 2011.

The water wave problem, **Olivetti Club**, Cornell University, April 20, 2010.

WKB asymptotic behavior of almost all generalized eigenfunctions for one-dimensional Schrödinger operators with slowly decaying potentials (two 45-minute lectures), **Summer School on Harmonic Analysis, Carleson Theorems and Multilinear Analysis**, Snowbird Resort (Utah), June 27 - July 3, 2009.

Singular integral operators, **Olivetti Club**, Cornell University, March 31, 2009.

An inverse theorem for the Gowers $U^3(G)$ norm (two 60-minute lectures), **Summer School on Additive Combinatorics**, Catalina Canyon Resort (California), August 10 - August 15, 2008.

The Waiting Time Paradox, **Mathematical Seminar**, University of Iceland, February 27, 2006.

Other Conferences Attended

Analysis and Applications, A conference in honor of Elias M. Stein, University of

Wroclaw, Wroclaw, Poland, September 4 - September 8, 2017.

Harmonic analysis and its interactions: in honour of Tony Carbery, International Centre for Mathematical Sciences, Edinburgh, Scotland, July 17 - July 21, 2017.

Recent Developments at the Harmonic Analysis semester program, Mathematical Sciences Research Institute, Berkeley, California, May 15 - May 19, 2017.

February Fourier Talks 2017, University of Maryland, College Park, Maryland, February 16 - February 17, 2017.

Introductory Workshop at the Harmonic Analysis semester program, Mathematical Sciences Research Institute, Berkeley, California, January 23 - January 27, 2017.

Integers Conference 2016, University of West Georgia, Carrollton, Georgia, October 6 - October 9, 2016.

10th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial, Madrid, Spain, June 12 - June 17, 2016.

Conference in Harmonic Analysis in Honor of Michael Christ, University of Wisconsin, Madison, Wisconsin, May 16 - May 20, 2016.

FrankFest 2016, Conference on Isoperimetric Problems, Williams College, Williamstown, Massachusetts, February 5 - February 6, 2016.

Joint Mathematics Meetings, Seattle, Washington, January 6 - January 9, 2016.

Joint Mathematics Meetings, San Antonio, Texas, January 10 - January 13, 2015.

Joint Mathematics Meetings, Baltimore, Maryland, January 15 - January 18, 2014.

Joint Mathematics Meetings, San Diego, California, January 9 - January 12, 2013.

Workshop on Geometric Analysis on Euclidean and Homogeneous Spaces, Tufts University, Medford, Massachusetts, January 8 - January 9, 2012.

Conference in Harmonic Analysis and Partial Differential Equations in honour of Eric Sawyer, Fields Institute, Toronto, Canada, July 26 - July 29, 2011.

Analysis and Applications: A Conference in Honor of Elias M. Stein, Princeton University, Princeton, New Jersey, May 16 - May 20, 2011.

AMS Fall Eastern Sectional Meeting, Syracuse University, Syracuse, New York, October 2 - October 3, 2010.

Euclidean Harmonic Analysis, Nilpotent Lie Groups and PDEs, Centro di Ricerca Matematica Ennio De Giorgi, Pisa, Italy, March 22 - March 30, 2010. (Partial funding by the De Giorgi center.)

Joint Mathematics Meetings, San Francisco, California, January 13 - January 16, 2010. (Funded by the AMS.)

Recent Advances in Harmonic Analysis and Elliptic Partial Differential Equations, University of Virginia, May 8 - May 10, 2009. (Funded by the conference.)

24th Nordic and 1st Franco-Nordic Congress of Mathematicians, Reykjavik, Iceland,

January 2005.

Advising

Ph.D. Students Advised at Virginia Tech

Sean Sovine — Fall 2017 - Present

MS Students Advised at Virginia Tech

James Depret-Guillaume — Spring 2018 - Present

Summer Research Experience for Undergraduates Advised at Williams College

Number Theory and Harmonic Analysis — Summer 2016
Peter Cohen (Bowdoin), Katherine Cordwell (University of Maryland),
Rebecca Durst (Williams), Alyssa Epstein (Williams),
Oscar Gonzalez (University of Puerto Rico), Anand Hemmady (Williams),
Magda Hlavacek (Harvey Mudd), Ngoc Yen Chi Huynh (Georgia Tech),
Chung Hang Kwan (University of Illinois at Urbana-Champaign),
Adam Lott (University of Rochester), Carsten Peterson (Yale),
Aaditya Sharma (Williams), Carsten Sprunger (University of Michigan),
Roger Van Peski (Princeton), Yen Nhi Truong Vu (Amherst)

Number Theory and Harmonic Analysis — Summer 2015
Megumi Asada (Williams), Paula Burkhardt (Pomona), David Burt (Williams),
Jonathan DeWitt (Haverford), Robert Dorward (Oberlin), Eva Fourakis (Williams),
Eli Goldstein (Williams), Sarah Manski (Kalamazoo), Gwyneth Moreland (Michigan),
Hong Suh (Pomona), Blaine Talbut (Chicago), Kevin Yang (Harvard)

Colloquia Advised at Williams College

Math Madness: Ranking NCAA Basketball Teams, N. Feshbach — March 2016
Gomory-Hu Trees and Their Applications, D. Timilsina — Winter Study 2016
Tetris is Hard, A. Savery — Winter Study 2016
Density Estimation with Orthogonal Series, M. Radford — Winter Study 2016

Independent Study Advised at Williams College

Escape the Room, Williamstown, O. Gouda — Winter Study 2016

Undergraduate Independent Studies Advised at the University of Rochester

Four Color Theorem, C. Fredrickson — Fall 2013
Dynamics of Zombies, A. Murray — Spring 2013
Betting and the Kelly Criterion, N. Benjamin — Fall 2012
Applications of the Radon Transform, J. Rowan — Fall 2012

Teaching

Virginia Tech

Intro to Harmonic Analysis, Instructor — Spring 2018
Calculus of Several Variables, Instructor — Fall 2016, 2017

Williams College

Harmonic Analysis, Instructor — Spring 2016
Partial Differential Equations, Instructor — Spring 2015
Wavelets and Image Processing, Instructor — Winter Study 2016
Applied Real Analysis, Instructor — Spring 2016
Differential Equations, Instructor — Spring 2015
Calculus II, Instructor — Fall 2014

Calculus I, Instructor	Fall 2015

University of Rochester

Functions of a Real Variable, Instructor	Fall 2012
Combinatorics, Instructor	Spring 2012, Fall 2013
Qualitative Theory of Ordinary Differential Equations, Instructor	Fall 2011
Introduction to Mathematical Models in the Life Sciences, Instructor	Spring 2013, 2014
Linear Algebra with Differential Equations, Instructor	Spring 2013, Fall 2011, 2013
Calculus II, Instructor	Spring 2012, 2014, Fall 2012

Cornell University

Calculus I, Assistant to the Course Coordinator	Spring 2011
Calculus II for Engineers, Instructor	Fall 2009
Calculus II, Instructor	Spring 2009
Calculus II for Engineers, Assistant to the Course Coordinator	Fall 2009, 2010
Multi-variable Calculus for Engineers, Assistant to the Course Coordinator	Fall 2007, 2008 Spring 2008
Multi-variable Calculus for Engineers, Teaching Assistant	Fall 2006, 2007, 2008 Spring 2007, 2008

University of Iceland

Real Analysis for Math Majors, Teaching Assistant	Fall 2004

Service

Referee for the Proceedings of the American Mathematical Society, Mathematical Research Letters, Journal of Number Theory, The Journal of Geometric Analysis, Banach Journal of Mathematical Analysis, Central European Journal of Mathematics, Results in Mathematics, AMS Contemporary Mathematics and American Mathematical Monthly.

Reviewer for Mathematical Reviews and Zentralblatt MATH.

Faculty advisor to the Williams College Student Chapter of the AMS, that was formed in 2015 and was the first chapter of its kind at an undergraduate institution.

Co-organizer of the University of Rochester Math Olympiad, February 2012 and 2013.

Given lectures at the University of Rochester Math Circle and the Blacksburg Math Circle.

Membership

Member of the *American Mathematical Society*; August 2006 to Present

Member of the *Mathematical Association of America*; April 2015 to Present

Member of the *Icelandic Mathematical Society*; August 2003 to Present