

## Curriculum Vita

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### Appointments

- Assistant Professor, University of Arkansas, January 2016–present
- Research Member, Harmonic Analysis Program, Mathematical Sciences Research Institute, January–March 2017
- Post Doctoral Fellow, University of Missouri, August 2013–May 2015
- Visiting Assistant Professor, University of Minnesota, September 2011–May 2013
- Golomb Visiting Assistant Professor, Purdue University, August 2010–August 2011
- Graduate student, University of Chicago, September 2004–June 2010

### Education

- Ph.D. in Mathematics, June 2010  
Advisor: Carlos Kenig  
Dissertation: *Elliptic partial differential equations with complex coefficients*  
University of Chicago, Chicago, IL
- Master of Science in Mathematics, August 2006  
University of Chicago, Chicago, IL
- Study abroad, January–May 2004  
Budapest Semesters in Mathematics, Budapest, Hungary
- Bachelor of Science, majoring in Mathematics, January 2004  
Harvey Mudd College, Claremont, CA

### Honors

- Kowalsky Fellowship (supplemental support)  
Awarded to a graduate student (preferably a woman) for her final year  
University of Chicago Department of Mathematics, 2009–10
- Chavin Prize (granted for my undergraduate senior thesis)  
Honors a student who has authored a paper in the mathematical sciences  
Harvey Mudd College Department of Mathematics, Spring 2004
- Alice T. Schafer Prize (national award), Honorable Mention  
Awarded to an undergraduate woman for excellence in mathematics  
Association for Women in Mathematics, January 2004
- Robert James Prize  
Given to two rising sophomores who excel in mathematics  
Harvey Mudd College Department of Mathematics, Fall 2001

### Professional Affiliations

- American Mathematical Society
- Association for Women in Mathematics

**Publications (Original research)**

- Ariel Barton, Steve Hofmann, and Svitlana Mayboroda, *The Neumann problem for higher order elliptic equations with symmetric coefficients*, *Math. Ann.* **371** (2018), no. 1–2. 34 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-hofmann-mayboroda-neumann.pdf>
- Ariel Barton, Steve Hofmann, and Svitlana Mayboroda, *Dirichlet and Neumann boundary values of solutions to higher order elliptic equations*. *Ann. Inst. Fourier (Grenoble)* **69** (2019), no. 4. 43 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-hofmann-mayboroda-traces.pdf>
- Ariel Barton, Steve Hofmann, and Svitlana Mayboroda, *Bounds on layer potentials with rough inputs for higher order elliptic equations*. *Proc. Lond. Math. Soc. (3)* **119** (2019), no. 3. 44 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-hofmann-mayboroda-potentials.pdf>
- Ariel Barton, *Trace and extension theorems relating Besov spaces to weighted averaged Sobolev spaces*, *Math. Inequal. Appl.* **21** (2018), no. 3. 48 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-2018-traces.pdf>
- Ariel Barton, *Layer potentials for general linear elliptic systems*, *Electron. J. Differential Equations* **2017** (2017), no. 309. 23 pages.  
<https://ejde.math.txstate.edu/Volumes/2017/309/barton.pdf>
- Ariel Barton, Steve Hofmann, and Svitlana Mayboroda, *Square function estimates on layer potentials for higher-order elliptic equations*, *Math. Nachr.* **290** (2017), no. 16. 65 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-hofmann-mayboroda-2017.pdf>
- Ariel Barton, *Gradient estimates and the fundamental solution for higher-order elliptic systems with rough coefficients*, *Manuscripta Math.* **151** (2016), no. 3-4. 41 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-2016-fundamental.pdf>
- Ariel Barton and Svitlana Mayboroda, *Layer potentials and boundary-value problems for second order elliptic operators with data in Besov spaces*, *Mem. Amer. Math. Soc.* **243** (2016), no. 1149. 109+iv pages, 17 figures.  
<http://aeb019.hosted.uark.edu/docs/barton-mayboroda-2016-besov.pdf>
- Ariel Barton, *The Dirichlet problem with BMO boundary data and almost-real coefficients*, *Rev. Mat. Iberoam.* **31** (2015), no. 2. 36 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-2015-BMO-dirichlet.pdf>
- Ariel Barton and Lesley Ward, *A new class of harmonic measure distribution functions*, *J. Geom. Anal.* **24** (2014), no. 4. 34 pages, 7 figures.  
<http://aeb019.hosted.uark.edu/docs/barton-ward-2014-hmdf.pdf>
- Ariel Barton and Svitlana Mayboroda, *The Dirichlet problem for higher order equations in composition form*, *J. Funct. Anal.* **265** (2013), no. 1. 51 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-mayboroda-2013-dirichlet.pdf>
- Ariel Barton, *Elliptic Partial Differential Equations with Almost-Real Coefficients*, *Mem. Amer. Math. Soc.* **223** (2013), no. 1051. 108+vii pages, 5 figures.  
<http://aeb019.hosted.uark.edu/docs/barton-2013-elliptic.pdf>

**Publications (Survey papers)**

- Ariel Barton and Svitlana Mayboroda, *Higher-order elliptic equations in non-smooth domains: a partial survey*, *Harmonic analysis, partial differential equations, complex*

analysis, Banach spaces, and operator theory. Vol. 1, 55121, Assoc. Women Math. Ser., 4, Springer, [Cham], 2016. 57 pages.

<http://aeb019.hosted.uark.edu/docs/barton-mayboroda-2016-history.pdf>

An earlier version appeared in: Concrete operators, spectral theory, operators in harmonic analysis and approximation, Oper. Theory Adv. Appl., vol. 236, Birkhäuser/Springer, Basel, 2014. 41 pages.

<http://aeb019.hosted.uark.edu/docs/barton-mayboroda-2014-history.pdf>

#### Submitted papers

- Ariel Barton, *The  $W^{1,p}$  Neumann problem for higher order elliptic equations*. 47 pages.  
<https://aeb019.hosted.uark.edu/docs/barton-wp.pdf>
- Ariel Barton, Steve Hofmann, and Svitlana Mayboroda, *Nontangential estimates on layer potentials and the Neumann problem for higher order elliptic equations*. 44 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-hofmann-mayboroda-nontangential.pdf>
- Ariel Barton, *Extrapolation of well posedness for higher order elliptic systems with rough coefficients*. 29 pages.  
<http://aeb019.hosted.uark.edu/docs/barton-extrapolation.pdf>

#### Research Talks

- Analysis in Missouri: a Midwestern symposium, University of Missouri, Columbia, MO, September 6, 2019
- Analysis Seminar, University of Arkansas, Fayetteville, AR, February 7, 2019
- AMS Special Session on “Harmonic Analysis, Partial Differential Equations, and Applications”, Joint Mathematics Meetings 2019, Baltimore, MD, January 18, 2019
- SIAM Minisymposium on “Nonlinear Partial Differential Equations and Applications”, SIAM TX-LA Sectional Meeting, Baton Rouge, LA, October 6, 2018
- Analysis seminar, University of Arkansas, Fayetteville, AR, September 20, 2018
- International Workshop on Partial Differential Equations and Complex Analysis, Satellite Conference of the International Congress of Mathematicians 2018, Universidade Federal de São Carlos, Brazil, August 13, 2018
- Research Seminar, Summer Session on Harmonic Analysis, IAS/Park City Mathematics Institute, Park City, UT, July 11, 2018
- Workshop on “Real Harmonic Analysis and its Applications to Partial Differential Equations and Geometric Measure Theory”, Instituto de Ciencias Matemáticas, Madrid, Spain, May 30, 2018
- AMS Special Session on “Regularity of PDEs on Rough Domains”, 2018 Spring Eastern Sectional Meeting in Boston, MA, April 21, 2018
- AMS Special Session on “Analysis at the intersection of Geometric Measure Theory and Partial Differential Equations”, 2018 Spring Western Sectional Meeting in Portland, OR, April 14, 2018
- Harmonic Analysis seminar, Mathematical Sciences Research Institute, February 13, 2017
- Analysis seminar, University of Arkansas, Fayetteville, AR, November 17, 2016
- AMS Special Session on “Women in Analysis and Partial Differential Equations”, 2016 Fall Central Sectional Meeting in Minneapolis, MN, October 29, 2016
- Workshop for Women in Analysis and PDE, Institute for Mathematics and its Applications, University of Minnesota, May 31, 2015

- AMS Special Session on “Complex Analysis, Probability and Metric Geometry”, 2014 Spring Southeastern Sectional Meeting in Knoxville, TN, March 22, 2014
- Analysis seminar, University of Missouri, Columbia, MO, February 11, 2014
- AMS Special Session on “Harmonic Analysis and Partial Differential Equations”, 2013 Fall Southeastern Sectional Meeting in Louisville, KY, October 5, 2013
- PDE seminar, University of Missouri, Columbia, MO, October 4, 2013
- AMS Special Session on “Harmonic Analysis, Partial Differential Equations, and Geometric Measure Theory”, 2013 Joint Mathematics Meetings in San Diego, January 10, 2013
- Workshop for Women in Analysis and PDE, Institute for Mathematics and its Applications, University of Minnesota, June 2, 2012
- 2012 Spring Lecture Series, University of Arkansas, Fayetteville, AR, April 12, 2012
- Analysis Seminar, Brown University, Providence, RI, March 12, 2012
- PDE Seminar, University of Minnesota, Minneapolis, MN, September 21, 2011
- AMS Special Session on “Harmonic Analysis and Partial Differential Equations”, 2011 Joint Mathematics Meetings in New Orleans, January 8, 2011
- Function Theory Seminar, Purdue University, West Lafayette, IN, December 1, 2010
- AMS Special Session on “Harmonic Analysis”, 2010 Fall Eastern Sectional Meeting in Syracuse, NY, October 2, 2010
- PDE Seminar, Purdue University, West Lafayette, IN, September 23, 2010
- AMS Special Session on “Function Theory, Harmonic Analysis, and Partial Differential Equations”, 2010 Spring Southeastern Sectional Meeting in Lexington, KY, March 27, 2010
- Calderón-Zygmund Analysis Seminar, University of Chicago, Chicago, IL, November 30, 2009
- Graduate Student PDE seminar, University of Chicago, Chicago, IL, February 27, 2008

#### **Conferences organized**

- (with Simon Bortz) AMS Special Session on “Harmonic Analysis and Partial Differential Equations”, 2018 Fall Southeastern Sectional Meeting in Fayetteville, AR, November 3–4, 2018

#### **Conferences and Workshops**

- Harmonic Analysis Program, Mathematical Sciences Research Institute, January 17–March 31, 2017
- Workshop for Women in Analysis and PDE, Institute for Mathematics and its Applications, University of Minnesota, May 28–31, 2015
- Harmonic Analysis and Partial Differential Equations: Recent Developments and Future Directions, A Conference in Honor of C.E. Kenig, September 19–21, 2014
- 73rd Midwest PDE Seminar, Northwestern University, May 10–11, 2014
- Structured Quartet Research Ensemble (SQuaRE) on “Singular integral operators and solvability of boundary problems for elliptic equations with rough coefficients,” American Institute of Mathematics, Palo Alto, CA, April 21–25, 2014
- Sixteenth Rivière-Fabes Symposium on Analysis and PDE, University of Minnesota, April 19–21, 2013

- 2013 Joint Mathematics Meetings in San Diego, January 9–11, 2013
- Workshop for Women in Analysis and PDE, Institute for Mathematics and its Applications, University of Minnesota, May 30–June 2, 2012
- Fifteenth Rivière-Fabes Symposium on Analysis and PDE, University of Minnesota, April 20–22, 2012
- 2012 Spring Lecture Series, University of Arkansas, April 12–14, 2012
- Workshop on weighted singular integral operators and non-homogenous harmonic analysis, American Institute of Mathematics, Palo Alto, California, October 10–14, 2011
- 2011 Joint Mathematics Meetings in New Orleans, January 6–8, 2011
- International Workshop in Fourier Analysis and PDE, Beijing Normal University, Beijing, China, December 15–17, 2008

#### Grants

- AWM-NSF Travel Grant: up to \$910 in travel reimbursement to attend and give a talk at the Joint Math Meetings in San Diego, January 2013

#### Graduate Mentoring

- (in progress, Fall 2018–present) Doctoral Dissertation, Michael Duffy
- Directed Reading, Michael Duffy, Fall 2017, Spring 2018

#### Teaching Experience

- Math 2584C: “Elementary Differential Equations”, University of Arkansas, January–May 2016, August–December 2016, August–December 2017, January–May 2018, August–December 2019, January–May 2020
- Math 4513: “Advanced Calculus I”, University of Arkansas, January–May 2020
- Math 3083: “Linear Algebra”, University of Arkansas, January–May 2019
- Math 5313: “Partial Differential Equations”, University of Arkansas, August–December 2018
- Math 2554H: “Honors Calculus I”, University of Arkansas, August–December 2018
- Math 2574H: “Honors Calculus III”, University of Arkansas, August–December 2017
- Math 5533: “Theory of functions of a complex variable II”, University of Arkansas, August–December 2016
- Math 5523: “Theory of functions of a complex variable I”, University of Arkansas, January–May 2016
- Math 4100: “Differential Equations”, University of Missouri, January–May 2014 and January–May 2015
- Math 4500: “Applied Analysis”, University of Missouri, August–December 2014
- Math 1400: “Calculus for Social and Natural Sciences”, University of Missouri, August–December 2013 and August–December 2014
- Math 5588: “Elementary Partial Differential Equations II”, University of Minnesota, January–May 2013
- Math 5587: “Elementary Partial Differential Equations I”, University of Minnesota, September–December 2012
- Math 1371: “CSE Calculus I”, University of Minnesota, September–December 2011 and September–December 2012

- Math 4567: “Applied Fourier Analysis”, University of Minnesota, January–May 2012
- Math 527: “Advanced Mathematics For Engineers And Physicists I” (graduate-level linear algebra, differential equations, and Fourier analysis), Purdue University, June–August 2011
- Math 366: “Ordinary Differential Equations”, Purdue University, January–May 2011
- Math 266: “Ordinary Differential Equations”, Purdue University, August–December 2010
- Math 105-106: “Fundamental Mathematics” (precalculus), University of Chicago, September 2008–March 2009 and September 2009–March 2010
- Math 152-153: “Calculus”, University of Chicago, September 2007–March 2008
- Math 131-132-133: “Elementary Functions and Calculus”, University of Chicago, September 2006–May 2007

**Undergraduate Mentoring**

- UROP mentoring: Mentored undergraduate research student Ye Wang (together with Professor Svitlana Mayboroda), Fall 2012
- REU mentoring: Mentored undergraduate research student Landon Lehman (together with Professor Svitlana Mayboroda), Summer 2011
- VIGRE Directed Reading Program, University of Chicago  
Mentored independent reading projects for undergraduates with mutual mathematical interests:
  - Alex Korbonits, *Flows on Manifolds*, January–March 2010
  - Seung Hyun Yang, *Number Theory and Cryptography*, October–December 2007
  - Yana Peysakhovich, *Communication and Cooperative games*, January–March 2007