

KATHARINE A. OTT

Department of Mathematics
University of Kentucky
715 Patterson Office Tower
Lexington, KY 40506-0027

Telephone: (859) 257-6815
Fax: (859) 257-4078
Email: katharine.ott@uky.edu
Web: <http://www.math.uky.edu/~kott>

CURRENT POSITION

NSF Mathematical Sciences Postdoctoral Research Fellowship 2008 – present
University of Kentucky, Supervisor: Russell Brown

EDUCATION

Ph.D. **University of Virginia**, Dept. of Mathematics, Charlottesville, VA 2008
Dissertation “Boundary Integral Equations in Non-Smooth Domains”
Advisor: Irina Mitrea

M.S. **University of Virginia**, Dept. of Mathematics, Charlottesville, VA 2005

B.A. **Middlebury College**, Middlebury, VT 2003
Summa Cum Laude, Phi Beta Kappa, High Honors in Mathematics

RESEARCH INTERESTS

Real, Complex and Harmonic Analysis and Partial Differential Equations

JOURNAL ARTICLES

Electromagnetic scattering from perturbed surfaces, with I. Mitrea, *Mathematical Methods in the Applied Sciences* 30 (2007), 861-876.

Counterexamples to the well-posedness of L^p transmission boundary value problems for the Laplacian, with I. Mitrea, *Proceedings of the American Mathematical Society* 135 (2007), 2037-2043.

The mixed problem for the Laplacian in Lipschitz domains, with R. Brown, arXiv:0909.0061v1 [math.AP].

Spectral theory and iterative methods for the Maxwell system in non-smooth domains, with I. Mitrea, submitted.

Global optimization techniques for singular integrals, with I. Mitrea and W. Tucker, in preparation.

Spectral radius estimates of elliptic layer potentials on homogeneous Besov spaces for curvilinear polygons, with T. Jakab and I. Mitrea, in preparation.

Spectral properties of the radiosity operator on unoccluded curves, with D. Isaacs and I. Mitrea, in preparation.

FELLOWSHIPS AND AWARDS

Association for Women and Mathematics Travel Award, for travel to the 2010 Joint Mathematics Meetings	2009
UVa Faculty Senate Dissertation Year Fellowship, University of Virginia, for excellence in research and teaching	2007-2008
Virginia Space Grant Consortium Aerospace Graduate Research Fellowship, sponsored in part by NASA	2005-2007
Department of Mathematics Graduate TA Award, University of Virginia, for excellence in teaching	2006-2007
2nd Prize Oral Presentations: Huskey Research Exhibition, University of Virginia	April 2007
Double Hoo Research Award, University of Virginia, to support joint research with an undergraduate student,	2006-2007
Association for Women in Mathematics Travel Award for travel to the 2007 Joint Mathematics Meetings	2006
AAAS Mass Media Science and Engineering Fellowship, sponsored by SIAM	Summer 2006
Vincent J. Mastracco Fellowship, University of Virginia	Spring 2006
Mrs. Charles Bryant Endowment Fund Graduate Fellowship, University of Virginia	Spring 2006
Pratt Bequest Fellowship, University of Virginia	Spring 2004
Edwin E. Floyd Fellowship, University of Virginia	Fall 2003

CONFERENCE TALKS AND POSTERS

The mixed problem for the Laplacian in Lipschitz domains, **Prairie Analysis Seminar**, Kansas State University, October 2, 2009.

Bi-parameter paraproducts (two 45-minute lectures), **Summer School on Harmonic Analysis, Carleson Theorems and Multilinear Analysis**, Snowbird Resort (Utah), June 27 – July 3, 2009.

Mixed boundary value problems, **Women and Mathematics Program, Institute for Advanced Study**, June 9, 2009.

The mixed problem for the Laplacian in Lipschitz domains, **Recent Advances in Harmonic Analysis and Elliptic Partial Differential Equations**, University of Virginia, May 8, 2009.

Spectral properties of the single layer potential operator for the Lamé system of elastostatics on domains with isolated singularities, **The 34th Arkansas Spring Lecture Series: New Developments on the Discrepancy Function and Related Results**, University of Arkansas, April 16, 2009.

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CONFERENCE TALKS AND POSTERS, *continued*

Boundary value problems in non-smooth domains (poster), **Career Options for Women in Mathematics**, Institute for Mathematics and its Applications, April 3, 2009.

Invertibility properties of the single layer potential operator for the Lamé system of elastostatics on curvilinear polygons in two dimensions, **AMS Special Session on Harmonic Analysis, Joint Mathematics Meetings**, Washington, DC, January 7, 2009.

The regularity problem for the Lamé system of elastostatics on curvilinear polygons in two dimensions, **Southeastern Atlantic Regional Conference on Differential Equations**, University of Arkansas - Little Rock, October 11, 2008.

The solvability of the radiosity equation on unoccluded curves, **Virginia Space Grant Consortium Annual Student Research Conference and Alumni Luncheon**, Old Dominion University, April 21, 2008.

Transmission boundary value problems in non-smooth domains (poster), **February Fourier Talks**, Norbert Wiener Center for Harmonic Analysis and Applications, University of Maryland, February 21, 2008.

Mellin and global optimization techniques for singular integrals in two dimensions, **AMS Special Session on Global Optimization and Operations Research Applications, II, Joint Mathematics Meetings**, San Diego, CA, January 9, 2008.

Spectral theory for the Maxwell system of equations, **The 7th Mississippi State UAB Conference on Differential Equations and Computational Simulations**, University of Alabama - Birmingham, November 2, 2007.

Electromagnetic scattering from perturbed surfaces, **Virginia Space Grant Consortium Annual Student Research Conference and Alumni Luncheon**, College of William and Mary, April 16, 2007.

Transmission problems in non-smooth domains (poster), **Association for Women in Mathematics Workshop at the Joint Mathematics Meeting**, New Orleans, LA, January 8, 2007.

Electromagnetic scattering from perturbed surfaces, **Conference on Applied Analysis on the Occasion of the 65th Birthday of David Kinderlehrer**, Carnegie Mellon University, October 20, 2006.

Transmission boundary value problems in non-smooth domains, **Virginia Space Grant Consortium Annual Student Research Conference and Alumni Luncheon**, Newport News, VA, April 11, 2006.

Transmission boundary value problems in non-smooth domains, **AMS Southeastern Sectional Meeting, Special session on Nonlinear PDE Evolutionary Systems and Their Control**, Johnson City, TN, October 15, 2005.

The sharpness of L^p transmission boundary value problems in Lipschitz domains, **Control Methods in PDE-Dynamical Systems**, Snowbird Resort (Utah), July 3 – 7, 2005.

COLLOQUIUM AND SEMINAR TALKS

Colloquium, Worcester Polytechnic Institute

- *Mixed boundary value problems in non-smooth domains*, September 25, 2009.

Analysis Seminar, Brown University

- *The mixed problem for the Laplacian in Lipschitz domains*, September 23, 2009.

Analysis Seminar, University of Arkansas

- *Spectral properties of singular integral operators*, October 9, 2008.

Analysis and PDE Seminar, University of Kentucky

- *The mixed problem for the Laplacian in Lipschitz domains*, September 29, 2009.
- *The spectral radius conjecture on Besov spaces*, October 7, 2008.
- *Boundary integral equations in non-smooth domains*, June 20, 2008.

Differential Equations and Dynamical Systems Seminar, University of Virginia

- *Spectral theory for layer potentials associated with the Maxwell system in non-smooth domains*, October 2, 2007.
- *Carleson measures in Partial Differential Equations*, November 7, 2006.
- *Transmission boundary value problems in non-smooth domains: The case of the Laplacian*, October 16, 2005.

OTHER CONFERENCES AND WORKSHOPS ATTENDED

Summer School on Harmonic Analysis, Carleson Theorems, and Multilinear Analysis, Mathematical Research Communities and Summer School, Snowbird Resort (Utah), June 27 – July 3, 2009.

Fourth Symposium on Analysis and Partial Differential Equations, Purdue University, May 26 – 29, 2009.

Career Options for Women in Mathematical Sciences, Institute for Mathematics and Its Applications, April 2 – 4, 2009.

The 61st Fall 2008 Midwest Partial Differential Equations Seminar, The Ohio State University, November 7 – 9, 2008.

59th Midwest Partial Differential Equations Seminar, University of Kentucky, March 24 – 25, 2007.

Rivière-Fabes Symposium, University of Minnesota, April 7 – 9, 2006.

NSF-FRG Conference on Interactions Between Harmonic Analysis and Partial Differential Equations, University of Missouri, March 24 – 26, 2006.

MSRI Introductory Workshop in Nonlinear Dispersive Equations, Mathematical Sciences Research Institute, August 22 – 26, 2005.

NSF/CBMS Regional Research Conference in the Mathematical Sciences: New Perspectives for Boundary Value Problems and Their Asymptotics, University of Texas – Pan American, May 16 – 20, 2005.

ORGANIZATIONAL EXPERIENCE

<i>AMS 2010 Spring Southeastern Sectional Meeting #1057, Special Session on Function Theory, Harmonic Analysis and PDEs</i> , Co-organizer	March 2010
<i>Analysis and PDE Seminar</i> , University of Kentucky, Organizer	2009-2010

TEACHING EXPERIENCE

School of Mathematics, The Institute for Advanced Studies <i>2009 Program for Women and Mathematics: Partial Differential Equations on Surfaces in R^n</i> , Teaching Assistant	Summer 2009
University of Kentucky <i>Matrix Algebra and Applications (Math Majors section)</i> , Instructor	Fall 2008
<i>Matrix Algebra and Applications</i> , Instructor	Fall 2008
University of Virginia <i>Mathematical Modeling</i> , Co-Instructor	Summer 2007
<i>Calculus I</i> , Instructor	Fall 2006
<i>Multivariable Calculus</i> , Teaching Assistant	Fall 2005
<i>Applied Calculus I</i> , Instructor	Fall 2004, 2005
<i>Applied Calculus II</i> , Instructor	Spring 2005
<i>Calculus III</i> , Teaching Assistant	Spring 2004
<i>Calculus II</i> , Teaching Assistant	Fall 2003

UNDERGRADUATE TALKS AND PRESENTATIONS

<i>The Netflix prize: How mathematics can predict movies you'll love</i>	
- WPI Undergraduate Mathematics Lecturer Series , September 23, 2009.	
- University of Kentucky Undergraduate Math Club , April 1, 2009.	
<i>Blind image deconvolution: Making blurry images clear</i>	
- University of Kentucky Graduate Student Colloquium , February 11, 2009.	
<i>The Buffon needle problem</i>	
- Colorado College , January 31, 2008.	
- Middlebury College Weekly Math Talk , January 29, 2008.	
- Centre College Math Club , January 18, 2008.	
<i>Thomas Jefferson's wheel cipher</i>	
- University of Virginia Mead Endowment Seminar , January 30, 2007.	

TEACHING ENRICHMENT AND OUTREACH

University of Kentucky

- Noetherian Rings*, Co-founder of a group for women in mathematics 2009
Putnam Competition, Supervisor Fall 2008
Arkansas Women in Mathematics (AWSM), Invited speaker October 2008

University of Virginia

- Tomorrow's Professor Today Professional Development Program*, Teaching Resource Center 2006-2008
Sonja Kovalevskya High School Mathematics Day, Co-organizer April 2008
Mathematical Contest in Modeling, Co-organizer 2007-2008
Young Women Leaders Program, Volunteer 2008
Girls and Mathematics: Summer Day Program for Middle School Girls, Team Leader Summer 2007
Seminar on Thomas Jefferson and Mathematics, Co-adviser Spring 2007
Sonja Kovalevskya High School Mathematics Day, Co-organizer April 2007
Women in Mathematics and Science (WIMS), Member 2006-2008

OTHER PUBLICATIONS RELATED TO MATHEMATICS AND SCIENCE

"Numbers to Remember By." *Science* **324** (5932) 5 June 2009: 1271-a. [DOI: 10.1126/science.1175075] (book review) <http://www.sciencemag.org/cgi/reprint/324/5932/1271-a.pdf>

"My Summer of Science Journalism." *The BIG Notebook* (A Newsletter of the MAA Special Interest Group for Mathematics in Business, Industry & Government) August 2008: 1+

"Show, Don't Teach." *SIAM News* November 2006: 1+ <http://www.siam.org/news/news.php?id=1036>

"A Stretch Toward Science: Advances in Biology Pulling Math in a New Direction." *Milwaukee Journal-Sentinel* 4 Sept. 2006, metro ed.: G1+ <http://www.jsonline.com/story/index.aspx?id=489917>

"Zebrafish May Unlock Secrets to Repairing Nerves." *Milwaukee Journal-Sentinel* 14 Aug. 2006, metro ed.: G1+ <http://www.jsonline.com/story/index.aspx?id=482412>

"At Dissection, They Pick Through Brain's Terrain." *Milwaukee Journal-Sentinel* 31 July 2006, metro ed.: G1+ <http://www.jsonline.com/story/index.aspx?id=477529>

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OTHER PUBLICATIONS RELATED TO MATHEMATICS AND SCIENCE, *continued*

“Scientists Fight Friction Down to the Last Atom.” Milwaukee Journal-Sentinel 24 July 2006, metro ed.: G1+ <http://www.jsonline.com/story/index.aspx?id=474776>

“Lead Poisoning in Paradise: Loons Threatened.” Milwaukee Journal Sentinel 2 July 2006, metro ed.: B1+ <http://www.jsonline.com/story/index.aspx?id=450760>

“Will Fruit be the New Oil?” Milwaukee Journal-Sentinel 30 June 2006, metro ed.: A1+ <http://www.jsonline.com/story/index.aspx?id=445132>

“Zoo on Forefront of Avian Flu Fight.” Milwaukee Journal-Sentinel 27 June 2006, metro ed.: B1+ <http://www.jsonline.com/story/index.aspx?id=442572>

“Study of Fish Food Holds Key to Stable Population.” Milwaukee Journal-Sentinel 26 June 2006, metro ed.: 1G+ <http://www.jsonline.com/story/index.aspx?id=440134>

“Zeroing in on an Ancient World.” Milwaukee Journal-Sentinel 24 June 2006, metro ed.: 1A+ <http://www.jsonline.com/story/index.aspx?id=440843>

AFFILIATIONS

AMS, MAA, AWM, National Association of Science Writers