

# MARIE A. SNIPES

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## ACADEMIC EMPLOYMENT

Kenyon College, Gambier OH  
Associate Professor, July 2015 – present  
Assistant Professor, July 2011 – June 2015  
Visiting Assistant Professor, July 2009 – June 2011

## EDUCATION

University of Michigan, Ann Arbor, MI  
Ph.D. in Mathematics, August 2009  
Advisors: Juha Heinonen and Mario Bonk  
Dissertation: *Flat forms in Banach spaces*  
M.S. in Mathematics, May 2005  
  
Harvey Mudd College, Claremont, CA  
B.S. in Mathematics, May 1999,  
with Distinction and Honors in Mathematics

## RESEARCH INTERESTS

Geometric measure theory, analysis in Banach spaces, functional analysis, differential geometry, and image processing.

## UNDERGRAD. RESEARCH STUDENTS

Kevin Gerstle (Kenyon '11), Steve Matsumoto (Harvey Mudd '12),  
Alex Beckwith (Kenyon '14), Lila Greco (Kenyon '15),  
Robin Belton (Kenyon '16)

## HONORS AND AWARDS

Kenyon College, Gambier, OH  
Project NExT Fellow, 2009-2010  
  
University of Michigan, Ann Arbor, MI  
National Physical Science Consortium Fellow, 2003-2009  
  
Harvey Mudd College, Claremont, CA  
Chavin Prize for best undergraduate senior thesis, 1999

RESEARCH  
PUBLICATIONS

Maly, L., Shanmugalingam, N., and Snipes, M. *Trace and Extension Theorems for Functions of Bounded Variation*. Submitted.

David, G., and Snipes, M. A., *A Non-probabilistic proof of the Assouad embedding theorem with bounds on the dimension*. *Analysis and Geometry in Metric Spaces*, Vol. 1 (2013), 36--41.

Snipes, M. A., *Flat forms in Banach spaces*. *J. Geom. Anal.*, Vol. 23 (2013), 490--538.

Snipes, M. A., and Ward L. A. *Convergence properties of harmonic measure distributions for planar domains*. *Complex Var. Elliptic Equ.*, Vol. 53 (2008), 897--913.

Snipes, M. A., and Ward L. A. *Realising step functions as harmonic measure distributions of planar domains*. *Ann. Acad. Sci. Fenn. Math.*, Vol. 30 (2005), 353--360.

OTHER  
PUBLICATIONS

Holdener, J. A., and Snipes, M. A., *Mathematically Surprising Seoul: Mathematics in Seoul Street Food*. *Math. Intelligencer*, Vol. 37, (2015) 88-92.

Farnell, E. R., and Snipes, M. A., *Using the pottery wheel to explore topics in calculus*. Vol. 25 (2015) 170-180.

Holdener, J. A., and Snipes, M. A., *Sources of Flow as Sources of Symmetry: Divergence Patterns of Sinusoidal Vector Fields*. Conference Proceedings of the Bridges International Math and Art Conference (2014).

Cline, K., Zullo, H., Duncan, J., Stewart, A., Snipes, M., Glaze, G., Shay, K., George, J., Scharf, J., Peterson, D. *Creating Discussions with Classroom Voting in Linear Algebra*. *Int. J. Math. Educ. Sci. Tech.*, Vol 44 (2013), 1131-1142.

Snipes, M. A., *Book Review: Linear and Nonlinear Programming, 3<sup>rd</sup> ed. by David Luenberger and Yinyu Le*. *Amer. Math. Monthly*, Vol. 120, (2013) 373-379.

Lutgendorf, M. A., Snipes, M. A., Rau, T., Busch, J. M., Zelig, C. M., and Magann, E. F. *Reports to the Navy's Family Advocacy Program: Impact of removal of mandatory reporting for domestic violence*. *Mil. Med.*, Vol. 177 (2012), 702-708.

GRANTS  
AWARDED

*Data Driven Applications Inspiring Upper Division Mathematics:* Support for the development of data driven modules to enhance real analysis, linear algebra, and differential equations courses. Collaborative award to Kenyon College, Hendrix College, Saint Mary's College of Maryland, and Washington State University (total award amount: \$249,789). NSF DMS 1503929 (\$47,366), 2015.

*Workshop Travel to Study Analysis and Geometry in Metric Spaces:* Support for U.S. mathematicians to participate in a thematic research term at the Instituto de Ciencias Matemáticas (ICMAT) in Madrid, Spain. NSF DMS 1500982 (\$47,840), 2015.

*Technology Support for Course Creation, Innovation, and Enhancement in the Applied Mathematics and Computer Science Curriculum.* Kenyon College Teaching Initiative Grant (\$9,218), 2012.

Educational Advancement Foundation grant for Inquiry Based Learning Teaching Support (\$2500), 2010-2011.

INVITED  
PRESENTATIONS

*Math Education Day*, Aalto University, 19 May 2016.

*Analysis Seminar*, Kansas State University, 8 Mar. 2016.

*Applied and Computational Complex Analysis JP-UK Workshop*, Kyoto University, 19 Jan. 2016.

*Faculty Research Seminar*, St. Mary's College of Maryland, 1 Oct. 2015.

*Analysis Seminar*, Saint Louis University, 25 Sep. 2015.

*Mathematics Colloquium*, University of Cincinnati, 17 Sep. 2015.

*Modern Aspects of Complex Geometry: a conference in honor of Taft Professor David Minda*, University of Cincinnati, 14 May 2015.

*Undergraduate Mathematics Symposium*, Plenary Speaker, University of Illinois at Chicago, 18 Oct. 2014.

*Mathematics Colloquium*, Bowling Green State University, 25 Apr. 2014.

*Science Division Colloquium*, Kenyon College, 10 Apr. 2014.

*AMS Special Session on Complex Analysis, Probability, and Metric Geometry*, University of Tennessee, 21 Mar. 2014.

*Mathematics Colloquium*, American University of Sharjah, 9 Mar. 2014.

*Mathematics Colloquium*, University of Cincinnati, 27 Feb. 2014.

*2012 Summer School on Geometry and Data*, University of Idaho, 9-27 Jul. 2012.

INVITED  
PRESENTATIONS  
(CONTINUED)

*Bi-College (Bryn Mawr/Haverford) Mathematics Colloquium*, Bryn Mawr College, 7 Nov. 2011.

*Mathematics Colloquium*, College of Wooster, 20 Oct. 2011.

*Center for Industrial and Applied Mathematics/School of Mathematics and Statistics Research Seminar*, University of South Australia, 1 Jul. 2011.

*Spring Awards Banquet Keynote Speaker*, Ohio Wesleyan University, 12 Apr. 2011.

*Geometric Analysis Week*, Washington State University, 23 Mar. 2011.

*Mathematics Colloquium*, Siena College, 17 Feb. 2011.

*Mathematics Colloquium*, Rose-Hulman Institute of Technology, 14 Feb. 2011.

*Mathematics Colloquium*, Gettysburg College, 8 Feb. 2011.

*Mathematics Colloquium*, Saint Mary's College of Maryland, 31 Jan. 2011.

*Analysis Seminar*, University of Cincinnati, 15 Dec. 2010.

*AMS Special Session in Nonlinear Analysis and Geometry*, Syracuse University, 2 Oct. 2010.

*Mathematics Faculty Research Seminar*, Trinity University, 15 Apr. 2010.

*Mathematics Colloquium*, Saint Mary's University, San Antonio, 14 Apr. 2010.

*AMS Special Session in Geometric Function Theory and Analysis on Metric Spaces*, University of Kentucky, 27 Mar. 2010.

*Analysis Seminar*, Rice University, 17 Mar. 2010.

*Mathematics Colloquium*, University of Dayton, 25 Feb. 2010.

*Analysis Seminar*, Brown University, 2 Nov. 2009.

*Denison FASt Seminar*, Denison University, 7 Oct. 2009.

TEACHING  
EXPERIENCE

Kenyon College, Gambier, OH

Seeing with Data, Elements of Statistics, Calculus with Elementary Functions, Calculus II, Linear Algebra, Differential Equations, Complex Variables, Real Analysis I, Real Analysis II, Topology, Problem Solving, Measure Theory (Independent Study), Numerical Analysis (Independent Study), Fourier Analysis (Senior Honors), Partial Differential Equations (Independent Study)

University of Michigan, Ann Arbor, MI

Calculus I, Calculus I

OTHER PROFESSIONAL EXPERIENCE	<p><u>National Security Agency, Fort Meade, MD</u> <i>Cryptographic Network Evaluator (Summer 2005)</i> Performed security analyses on cryptographic components and random number generators of commercial web products.</p> <p><i>Applied Mathematician, Graduate Mathematics Program (Summer 2004)</i> Researched methods for analyzing and classifying large, complex datasets.</p> <p><u>United States Air Force, Randolph Air Force Base, TX</u> <i>Personnel Analyst (1999-2003)</i> Conducted statistical analysis of various aspects of the personnel life-cycle, including promotions, accessions, and retention. Developed models predicting outcomes of personnel policies.</p>
PROFESSIONAL DEVELOPMENT	<p><i>Park City Mathematical Institute Undergraduate Faculty Program (Summer 2010)</i> Three week program on the relationship between analysis and image processing. Emphasis on developing hands-on course materials for undergraduate analysis courses and on involving undergraduates in research projects.</p> <p><i>Project Next Teaching Workshops (Summer 2009-Summer 2010)</i> Professional development program for recent doctoral recipients in the first few years of teaching. The program focuses on improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities.</p> <p><i>Teaching for Inclusion (Winter 2008)</i> <i>Gender and Authority in the College Classroom (Winter 2008)</i> Half-day seminars, UM Center for Research on Learning and Teaching.</p> <p><i>UM Mathematics Teaching Orientation (Fall 2005)</i> Week-long course including lesson-planning, effective use of technology in the classroom, and videotaped practice lectures.</p>
COMPUTER SKILLS	<p>Computer Algebra Systems: <i>Maple, Matlab, Mathematica</i></p> <p>Statistics Software: <i>Minitab, R, SAS</i></p> <p>Languages: <i>C++, Java, Perl, HTML, LaTeX</i></p> <p>Productivity Software: <i>Microsoft Excel, Word, PowerPoint</i></p> <p>Other: <i>Compuware SoftICE, DataRescue IDAPro</i></p>

COLLEGE-WIDE SERVICE	<p>Kenyon Tenure and Promotion Committee Member (2016-Present)</p> <p>Kenyon Faculty Affairs Committee Member (2014-2015)</p> <p>Instructor, Kenyon Science Pre-Orientation Session (2016)</p> <p>Instructor, Kenyon Educational Enrichment Program (KEEP) Data Course (2014, 2015)</p> <p>Chemistry Search Committee Member (Spring 2014)</p> <p>Physics Search Committee Member (Spring 2012)</p> <p>College-wide Blended Learning Working Group Participant (2012)</p> <p>Presentations to KEEP students (2010, 2011, 2012, 2013)</p> <p>Panelist, “Clickers in the Classroom” discussion with Kenyon faculty (2011)</p>
DEPARTMENTAL SERVICE	<p>Co-organizer, Kenyon Math Mondays (2009-present)</p> <p>Putnam Team Advisor (2012, 2013, 2014)</p> <p>Mathematical Contest in Modeling Team Advisor (2012, 2014)</p> <p>Co-organizer, Kenyon College problem of the week (2009-2010)</p> <p>Kenyon Coordinator, 5-College Math Speaker Circuit Exchange (2009-2010)</p>
SERVICE TO MATHEMATICS	<p>Referee for The American Statistician (2015)</p> <p>Referee for PRIMUS Journal (2014)</p> <p>Mentoring and job application presentation to graduate students at the University of Cincinnati (2014)</p> <p>Reviewer, AMS Mathematical Reviews database (2006-present)</p> <p>Referee, ACM-SIAM Symposium On Discrete Algorithms (SODA) (2010)</p> <p>Co-organizer, Project NExT undergraduate research panel (2010)</p>
PROFESSIONAL AFFILIATIONS	<p>American Mathematical Society</p> <p>American Statistical Association</p> <p>Association for Women in Mathematics</p> <p>Mathematical Association of America</p>