Minah Oh

CONTACT INFORMATION

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EDUCATION

Ph.D in Mathematics, University of Florida, Gainesville, FL — 2010
Dissertation Title: Efficient Solution Techniques for Axisymmetric Problems
Advisor: Dr. Jay Gopalakrishnan
MS in Mathematics, University of Florida, Gainesville, FL — 2007
BS in Mathematics, Yonsei University, Seoul, Korea — 2005
Exchange Student, St. Olaf College, Northfield, MN — 2003 – 2004

POSITIONS

Associate Professor, Department of Mathematics and Statistics — 2016–present
Assistant Professor, Department of Mathematics and Statistics — 2010–2016
James Madison University, Harrisonburg, VA
Graduate Teaching Assistant, University of Florida, Gainesville, FL — 2005–2010
Intern, Citigroup, Sales and Trading in EM Markets, Seoul, Korea — 2005
Intern, Tong Yang Venture Capital, Seoul, Korea — 2003

RESEARCH INTERESTS

Finite Element Methods (FEMs)
Finite Element Exterior Calculus
Axisymmetric Problems
Efficient Iterative Solvers (multigrid)
Biomedical Applications of FEMs
Linear Algebra and Numerical Linear Algebra

PUBLICATIONS

1. Oh, Minah (with Brenner, Pollock, Porwal, Schedensack, and Sharma): "A C0 Interior Penalty Method for Elliptic Optimal Control Problems with Pointwise State Constraints in Three-Dimensions," To appear in The IMA Volumes in Mathematics and its Applications, Numerical Partial Differential Equations and Scientific Computing, 2015.
2. Oh, Minah: "De Rham Complexes arising from Fourier Finite Element Methods in Axisymmetric Domains," Computers and Mathematics with Applications 70 (2015), pp. 2063-2073.
3. Oh, Minah: "Introducing proofs to Calculus students," MAA Notes Series "Beyond Lecture: Techniques to Improve Student Proof-Writing Across the Curriculum," To appear. (2015)
4. Oh, Minah: "A new approach to the analysis of axisymmetric problems," IMA J Numer Anal (2014) 34 (4): 1686-1700.
5. Oh, Minah (with Gopalakrishnan): "Commuting smoothed projectors in weighted norms with an application to axisymmetric Maxwell equations," Journal of Scientific Computing, Vol. 51, pp. 394-420, 2012.
6. Oh, Minah (with Copeland and Gopalakrishnan): "Multigrid in a weighted space arising from axisymmetric electromagnetics," Mathematics of Computation, Vol. 79, pp. 2033-2058, 2010.
7. Oh, Minah: "Efficient solution techniques for axisymmetric problems," Ph.D. Dissertation, 2010. http://purl.fcla.edu/fcla/etd/UFE0041576

PRESENTATIONS

- Conference Presentations
  - Research Presentations

    Cascade RAIN Meeting, Washington State University — Apr. 2016
    Tools to Analyze Axisymmetric Problems

    Finite Element Circus, George Mason University — Mar. 2015
    De Rham Complexes arising from Fourier-FEMs in Axisymmetric Domains

    Finite Element Circus/Rodeo, Louisiana State University — Mar. 2013
    A New Approach to the Analysis of Axisymmetric Problems

    2013 Joint Mathematics Meeting, San Diego, CA — Jan. 2013
    A New Approach to the Analysis of Axisymmetric Problems

    2011 Joint Mathematics Meeting, New Orleans, LA — Jan. 2011
    Commuting Smoothed Projections in Weighted Spaces

    Finite Element Circus, IMA, Minneapolis, MN — Nov. 2010
    Commuting Smoothed Projections in Weighted Spaces

    Finite Element Circus, University of Delaware, Newark, DE — Apr. 2009
    Multigrid in a Weighted Spaces arising from Axisymmetric Electromagnetics

    33rd SIAM Southeastern-Atlantic Section Conference — Apr. 2009
    University of South Carolina
    Recent Advances in Computational Electromagnetics

  - Presentations related to Undergraduate Education

    MAA MD-DC-VA Sectional Meeting, Johns Hopkins University — Nov. 2016
    Effective In-Class Programming Projects for STEM Majors

    MAA MD-DC-VA Sectional Meeting, Roanoke College — Mar. 2015
    Finite Element Methods and Undergraduate Research

    MAA MD-DC-VA Section Meeting, Harrisonburg, VA — Apr. 2014
    Introducing Proofs to Calculus Students

    2013 Joint Mathematics Meeting, San Diego, CA — Jan. 2013
    An Applied Project for Linear Algebra Students: Finite Element Methods

    MAA MD-DC-VA Section Meeting, Newport News, VA — Nov. 2011
    An Applied Project for Linear Algebra Students

    2011 Joint Mathematics Meeting, New Orleans, LA — Jan. 2011
    Introducing Proofs to Calculus Students

- Invited Colloquium and Seminar Talks

  Colloquium, University of Mary Washington, Fredericksburg, VA — Apr. 2016
  Applied & Computational Mathematics Seminar

Portland State University, Portland, OR — Apr. 2016
Colloquium, Longwood University, Farmville, VA — Sep. 2013
Numerical Analysis Seminar, Virginia Tech, Blacksburg, VA — Nov. 2011
Colloquium, Colgate University, Hamilton, NY — Feb. 2010
Colloquium, University of North Carolina at Asheville — Feb. 2010
Colloquium, Clarkson University, Potsdam, NY — Feb. 2010
Colloquium, James Madison University, Harrisonburg, VA — Jan. 2010

WORKSHOPS

IMA Special Workshop — Mar. 2015
WhAM! A Research Collaboration Workshop for Women in Applied Mathematics: Numerical Partial Differential Equations and Scientific Computing
Louisiana State University. (Attended with full travel support by organizers.)

IMA Special Workshop — Oct. 2014
Structure-Preserving Discretizations of Partial Differential Equations
IMA, Minneapolis, MN. (Attended with full travel support by organizers.)

IMA Special Workshop — Aug. 2014
WhAM! A Research Collaboration Workshop for Women in Applied Mathematics: Numerical Partial Differential Equations and Scientific Computing
IMA, Minneapolis, MN. (Attended with full travel support by organizers.)

NSF/CBMS Conference — Jun. 2012
Finite Element Exterior Calculus (FEEC)
ICERM, Providence, RI. (Attended with full travel support by organizers.)

IMA Annual Program Year Workshop — Jun. 2011
Large-scale Inverse Problems and Quantification of Uncertainty
IMA, Minneapolis, MN.

IMA Annual Program Year Workshop — Nov. 2010
Numerical Solutions of Partial Differential Equations: Fast Solution Techniques
IMA, Minneapolis, MN. (Attended with full travel support by organizers.)

IMA Math Modeling Mathematical modeling in industry XIII — Aug. 2009
A Workshop for Graduate Students
IMA, Minneapolis, MN. (Attended with full travel support by organizers.)

GRANTS

2015 College of Science and Mathematics Summer Research Grant $4000, JMU
2011 College of Science and Mathematics Summer Research Grant $4000, JMU

UNDERGRADUATE RESEARCH STUDENTS

Charles Crook, JMU Internal REU — summer 2013
Project Title: Finite Element Methods for the Poisson Equation and its Applications

Justin Hall, JMU Internal REU — summer 2013
Project Title: Finite Element Methods for the Axisymmetric Maxwell Equations

Jacob Rhodes, JMU Independent Studies — 2012–2013
Project Title: Finite Element Methods and 3D Printing

NSF REU (Co-mentored with Josh Ducey of JMU) summer 2012
Students: Stephanie Bittner, Michael Cheung, Xuyi Guo, and Adam Zweber
Project Title: Approaches to Rota's Basis Conjecture

COURSES TAUGHT

Numerical Partial Differential Equations
Numerical Linear Algebra
Partial Differential Equations and Fourier Series
Computers and Numerical Algorithms
Linear Algebra with Differential Equations
Calculus 1, 2, and 3
Business Calculus
Precalculus: Algebra and Trigonometry

PROFESSIONAL SERVICE

- Department, College, and University

Established the JMU AWM Student Chapter. Dec. 2011
JMU AWM Student Chapter faculty advisor 2012–2013, 2016–present
Session Leader at MD-DC-VA MAA Meeting at JMU Apr. 2014
Volunteered at JMU SUMS Conference, Oct. 2010 and Oct. 2011
Applied Math Committee fall 2010–present
Colloquium Committee fall–spring
Search Committee 2012–2013
Student Evaluations of Teaching Committee fall 2014–present
Student Awards Committee fall 2014–present
Student Activities Committee fall 2014–present
Academic Advisor for Math Majors fall 2011–present
Participated in JMU research projects on EPIC classrooms. spring 2015
Annual Program Review Committee fall 2015–present

- Professional Societies or Grant Agencies

Program Chair, MD-DC-VA Section of the MAA 2016–2018

MAA MD-DC-VA Section's Liaison with the AWM, 2016–

At Large Member 2013–2015
MD-DC-VA MAA Section Meeting

MAA Tensor Grant Panelist spring 2015

Paper Referee 2011–present
SIAM Journal on Numerical Analysis, Computers and Mathematics with Applications, Journal of Scientific Computing

Undergraduate student poster judge Jan. 2011
Joint Mathematics Meeting, New Orleans, LA

Undergraduate student paper judge Apr. 2011
MD-DC-VA MAA Section Meeting, Randolph-Macon College

- K-12 Outreach Activities

  Workshop leader — Apr. 2011 and Apr. 2015
  Expanding Your Horizons (EYH), James Madison University

- Others

  Volunteer Math Tutor — summer 2010
  The Arbor House (homeless shelter for single moms.) Gainesville, FL

  Conference Advisor — 2008–2009
  The Second SIAM Gators Student Conference, University of Florida

  President, SIAM Student Chapter, University of Florida — 2007–2008

HONORS AND AWARDS

Section Project NExT — 2010–2012

Graduate Teaching Award, University of Florida — Mar. 2007
20 awards given among approximately 6000 TAs and adjuncts in the university.

Departmental Teaching Award — Mar. 2007
Department of Mathematics, University of Florida

SIAM Student Chapter Certificate of Recognition — May 2008
The SIAM Education Committee

SKILLS

Computer skills: Fluent in C/C++ Programming, Matlab, and Latex.
Language: Bilingual in English and Korean.