

Erica Zuhr

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EDUCATION:

Ph.D. in Mathematics, May 2012

University of Florida, Gainesville, FL

GPA 3.94

Master of Science in Mathematics, May 2009

University of Florida, Gainesville, FL

GPA 3.97

Bachelor of Science in Mathematics with honors, May 2007

University of North Carolina, Chapel Hill, NC

Minor: Physics

GPA 3.60, Mathematics GPA 3.80

DISSERTATION:

“A generalized Keller-Segel model”

Developed a generalized model for chemotaxis consisting of a highly nonlinear system of partial differential equations. Gave both theoretical and numerical results on solutions to the system. Dual research experience in both theoretical mathematical biology and numerical methods, in particular the finite element method implemented in MATLAB.

EXPERIENCE:

Assistant Professor of Mathematics, August 2012 – Present

High Point University, High Point, NC

Courses taught include Numerical Methods, Differential Equations, Real Analysis, Calculus I, and Calculus for Business and Social Sciences. Active research in the field of mathematical biology includes interdisciplinary collaboration with biologists and direction of undergraduate research.

Invited Participant, Fifth Montreal Problem Solving Workshop, August 2013

University of Montreal, Montreal, Canada

Developed a mathematical model of bone growth to fit clinical data and predict underlying causes of disease symptoms

Participant, Mathematical Modeling in Industry Workshop XIV, August 2010

Center for Mathematical Research, Guanajuato, Mexico

Worked with an international, interdisciplinary group of students under an industry adviser to complete a research project based on mathematical modeling of flow in a PEM fuel cell. Created presentation of results for workshop attendees.

Teaching Assistant, August 2008 – May 2009, August 2010 – December 2010

University of Florida Mathematics Department, Gainesville, FL

Led weekly discussion sections to answer questions and explain concepts. Held office hours to communicate with and assist students outside of class.

Honors thesis

University of North Carolina, Chapel Hill, NC

Was introduced to mathematical research by investigating the history of the Besicovitch set along with a construction of the set. Wrote a thesis and presented and defended it in front of a committee.

Computational Mathematics Group Intern, May 2006 – August 2006

Oak Ridge National Laboratory, Oak Ridge, TN

Worked on boundary element integration methods. Used Maple to implement numerical integration schemes.

Computational Chemistry Group Intern, May 2005 – August 2005

Oak Ridge National Laboratory, Oak Ridge, TN

Independently learned Maple and Python to implement numerical integration techniques to model research in the chemistry group. Learned OpenDX to visualize error arising from these routines.

PUBLICATIONS:

P. De Leenheer, J. Gopalakrishnan and E. Zuhr. “Nonnegativity of exact and numerical solutions of some chemotactic models.” *Computers & Mathematics with Applications*, 66(3):356-75, 2013.

P. De Leenheer, J. Gopalakrishnan and E. Zuhr. “Instability in a generalized Keller-Segel model.” *Journal of Biological Dynamics*, 6(2):974–991, 2012.

E. Zuhr. “On the construction of the Besicovitch Set.” Honors thesis, University of North Carolina at Chapel Hill, Dept. of Mathematics, 2007.

SELECTED CONFERENCES AND TALKS:

Mathematical Association of America Southeastern Section Meeting, March 2014 (talks)

Fifth Montreal Problem Solving Workshop, August 2013 (workshop)

Canadian Association of Physicists Congress, Montreal, Canada, May 2013 (talk)

Computational and Applied Mathematics Seminar, Portland State University, March 2013 (talk)

Graduate Math Association Colloquium, University of Florida, November 2012 (talk)

Joint Mathematics Meetings, Boston, MA, January 2012 (conference)

Biomathematics Seminar, University of Florida, September 2011 (talk)

DIMACS Workshop on Control Theory, Rutgers University, May 2011 (poster)

Biomathematics Conference, University of Florida, March 2011 (conference)

Mathematical Modeling in Industry Workshop XIV, August 2010 (workshop)

PROFESSIONAL MEMBERSHIPS:

American Mathematical Association, August 2007 - Present

Mathematical Association of America, August 2013 - Present

Sigma Xi, Scientific Research Society, May 2007 – Present

Graduate Math Association, University of Florida, August 2007 – May 2012

Pi Mu Epsilon, National Honorary Mathematics Fraternity, August 2005 – May 2007

AWARDS AND HONORS:

Project NExT Fellow, August 2013 – present

Selective national fellowship program for recent PhDs in the mathematical sciences sponsored by the Mathematical Association of America.

Alumni Fellow, August 2007 – May 2012

University of Florida, Gainesville, FL

Highest graduate student award available at the University of Florida.

The Archibald Henderson Prize in Mathematics, May 2007

University of North Carolina, Chapel Hill, NC

Given annually to the undergraduate who has demonstrated both a high degree of mathematical ability and the greatest promise of originality in the field.

SKILLS:**Computer**

Windows, Macintosh and Linux operating systems; Microsoft office; MATLAB; Python; Mathematica; Maple; LaTeX

Language:

Proficient in Spanish; Limited knowledge of German