

Maria-Veronica Ciocanel

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RESEARCH INTERESTS Dynamical systems, mathematical biology, ordinary and partial differential equations, stochastic processes, numerical methods

ACADEMIC APPOINTMENTS **Mathematical Biosciences Institute, The Ohio State University**, Columbus, OH
Postdoctoral Fellow **Summer 2017 (starting July 1st)**

EDUCATION **Brown University**, Providence, Rhode Island **September 2012 – May 2017**

- PhD, Applied Mathematics
- Advisor: Björn Sandstede, Professor of Applied Mathematics, Brown University
- MS, Applied Mathematics **September 2012 – May 2013**
- Relevant Course Work: Nonlinear Dynamical Systems, Quantitative Models of Biological Systems, Partial Differential Equations, Numerical Solutions to Partial Differential Equations, Stochastic Epidemic Models, Applied Asymptotic Analysis, Neural Dynamics

Duke University, Durham, North Carolina **August 2008 – May 2012**

- BS, Mathematics; BA, French and European Studies
- Graduation with Distinction in Mathematics (Honors), *summa cum laude*, Phi Beta Kappa
- Relevant Course Work: Nonlinear Differential Equations, Applied Partial Differential Equations and Complex Variables

PUBLICATIONS **Preprints**¹

MV Ciocanel, TL Stepien, I Sgouralis, and AT Layton.
A Multicellular Model of the Renal Myogenic Response. *Submitted* (2016).

JR Abrams, A Schwartz, **Veronica Ciocanel**, A Volkening, and B Sandstede.
Influenza spread on context-specific social networks. *In review* (2016).

Peer-reviewed articles

MV Ciocanel, JA Kreiling, JA Gagnon, KL Mowry, and B Sandstede.
Analysis of Active Transport by Fluorescence Recovery after Photobleaching. *Biophysical Journal* 112 (2017): 1714-1725.

EA Powrie, **MV Ciocanel**, JA Kreiling, JA Gagnon, B Sandstede, and KL Mowry.
Using *in vivo* imaging to measure RNA mobility in *Xenopus laevis* oocytes. *Methods* 98 (2016): 60-65.

MV Ciocanel, TL Stepien, A Edwards, and AT Layton.
Modeling Autoregulation of the Afferent Arteriole of the Rat Kidney. In press, *Research Collaborations in Mathematical Biology, Association for Women in Mathematics Springer Series* (2017).

MV Ciocanel.
Modeling and Numerical Simulation of the Nonlinear Dynamics of the Parametrically Forced String Pendulum. *SIURO* 5 (2012).

¹Most recent versions of all preprints are available at <http://www.dam.brown.edu/people/ciocanel/publications.html>

Project-based workshop reports

MV Ciocanel, S Docken, R Gasper, S Langford, W Samyono, M Olufsen (mentor). *Modeling blood withdrawal in the cardiovascular system*. Mathematical Research Communities, Snowbird, UT, 2016.

C Bi, **MV Ciocanel**, S Hill, D Rumschitzki, B Tilley, V Venkateshwaran (industry mentor), and Z He (industry mentor). *Filtration properties of compressed porous membranes*. MPI, Duke University, 2016.

MV Ciocanel, H Hardeman, D Nasserden, B Son, S Ye, and J Han (industry mentor). *Deducing Rock Properties from Spectral Seismic Data*. IMA, 2015.

SELECTED AWARDS

Sigma Xi Award from the Division of Applied Mathematics at Brown University May 2017

Honorable Mention, AWM Poster Competition at the SIAM Annual Meeting July 2016

Obtained Honorable Mention (one Winner and one Honorable Mention awarded) at the AWM Workshop Poster Competition at the 2016 SIAM Annual Meeting in Boston, MA.

SIAM Student Chapter Certificate of Recognition May 2016

Organized the Brown Mathematical Contest for Modeling, a 1.5-day contest for undergraduate student teams interested in solving real-world problems using mathematical tools.

Reginald D. Archambault Award for Teaching Excellence November 2015

Obtained First Prize for Excellence in Summer Session Education.

Co-taught a class on ordinary differential equations and applications to Brown undergraduate students with science concentrations.

Red Sock Award (SIAG/Dynamical Systems) for Best Poster Presentation May 2015

Obtained the Best Poster award (4 awards out of 100 posters) at the SIAM Conference on Applications of Dynamical Systems in Snowbird, UT.

Associate Member in Brown University Chapter of the Society of Sigma Xi March 2014

Julia Dale Prize in Mathematics, Duke University May 2012

Faculty Scholar Award, Honorable Mention, Duke University Fall 2011

Finalist and Ben Fusaro Award, International Mathematical Contest in Modeling Spring 2010

Awarded the Finalist Winner award (top 1% of participants, team of three).

Menger Prize in Mathematics, Duke University Spring 2010

INVITED TALKS SIAM Conference on Applications of Dynamical Systems, Snowbird, UT May 2017

Molecular Motors and Microtubule Modeling Meeting, Penn State, State College, PA May 2017

Mathematics Seminar at Creighton University, Omaha, NE April 2017

Probability and Statistics Seminar at Tulane University, New Orleans, LA October 2016

Mathematics Seminar at Bates College, Lewiston, ME October 2016

SIAM Chapter at Worcester Polytechnic Institute, Worcester, MA September 2016

SIAM Conference on the Life Sciences, Boston, MA July 2016

Brown/Boston University Dynamics and PDE Seminar, Boston, MA November 2015

CONTRIBUTED TALKS AND POSTER PRESENTATIONS WINRS, AWM New England Mathematical Meeting, Providence, RI March 2017

JMM, AMS Session on Mathematical Biology, Atlanta, GA January 2017

Brown University SIAM Chapter Math Slam, Providence, RI November 2016

Graduate Student Seminar at Brown University, Providence, RI October 2016, 2015

SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, PA (Poster) August 2016

AWM Workshop at the SIAM Annual Meeting, Boston, MA (Poster) July 2016

Conference on Analysis of PDEs using Dynamical Systems Techniques at Boston University, Boston, MA (Poster) June 2016

KUMU Conference on PDEs, Dynamical Systems and Applications at University of Missouri, Columbia, MO (Poster) April 2016

Applied Math Days at Rensselaer Polytechnic Institute, Troy, NY April 2016, 2015

Opening Workshop on Stochastic Dynamical Systems in Biology, Newton Institute for Mathematical Sciences, Cambridge, UK (Poster) January 2016

Brown Workshop on Dynamics and Stochastics, Providence, RI November 2015

SIAM Conference on Applications of Dynamical Systems, Snowbird, UT (Poster) May 2015

Brown Workshop on Agent-Based Modeling, Providence, RI March 2015

WORKSHOPS
ATTENDED

- Mathematics Research Communities (MRC) Workshop on Mathematics in Physiology and Medicine at Snowbird, UT June 19-25 2016
- Mathematical Problems in Industry (MPI) Workshop at Duke University June 13-17 2016
- The Opening Workshop on Stochastic Dynamical Systems in Biology: Numerical Methods and Applications, Newton Institute, Cambridge University 18-23 January 2016
- Mathematical Modeling in Industry Workshop for Graduate Students at IMA, University of Minnesota 5-14 August 2015
- A Research Collaboration Workshop for Women in Mathematical Biology at NIMBioS, University of Tennessee 22-25 June 2015
- Workshop on Agent-based Modeling at Brown University (organizer) 21-22 March 2015
- BU/Keio Workshop on Dynamical Systems at Boston University 15-19 September 2014
- Workshop on Stability of Solitary Waves at Pisa University 24-30 May 2014

TRAVEL
GRANTS

- SMB Landahl-Busenbergs Travel Award - to attend and give an invited talk at the SMB Annual Meeting, University of Utah, Salt Lake City, UT, July 2017
- SIAM Student Travel Award - to attend and give an invited talk at the SIAM Conference on Dynamical Systems and Applications, Snowbird, UT, May 2017
- MRC Collaboration Travel grant - to continue MRC research collaboration through a short-term visit at Creighton University, April 2017
- SIAM Student Travel Award - to attend and present a research poster at the SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, PA, August 2016
- AWM Award - to attend and present a research poster at the AWM Workshop, held in conjunction with the SIAM Annual Meeting, Boston, MA, July 2016
- MRC Award - to attend the Mathematics Research Communities (MRC) Workshop on Mathematics in Physiology and Medicine, Snowbird, UT, June 2016
- MPI Travel Award - to attend the Mathematical Problems in Industry Workshop at Duke University, Durham, NC, June 2015
- Brown Graduate Research Travel Grant - to attend the KUMU Conference on PDE, Dynamical Systems, and Applications, Columbia, MO, April 2016
- RPI Travel Award - to attend Applied Math Days, Troy, NY, April 2016 and 2015
- NIMBioS Travel Award - to participate in a short-term visit to continue work on modeling kidney autoregulation, Knoxville, TN, February 2016
- NSF Travel Award - to attend the Opening Workshop of the Newton Institute program on Stochastic Dynamical Systems in Biology, Cambridge, UK, January 2016
- IMA Travel Award - to attend the Mathematical Modeling in Industry Workshop, Minneapolis, MN, August 2015
- NIMBioS Travel Award - to attend the Research Collaboration Workshop for Women in Mathematical Biology, Knoxville, TN, June 2015
- Brown Graduate Research Travel Grant - to attend the SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 2015

PROFESSIONAL
ORGANIZATIONS

- Society for Industrial and Applied Mathematics
- Association for Women in Mathematics
- American Mathematical Society
- Society for Mathematical Biology

ORGANIZING ACTIVITIES	<ul style="list-style-type: none"> • Organizer of Minisymposium on Modeling of intracellular transport and cell organization (two-part) at SIAM Conference on Applications of Dynamical Systems, Snowbird, UT May 2017 • Organizer of Minisymposium on Modeling of Mechanisms of Intracellular Transport at SIAM Conference on the Life Sciences, Boston, MA July 2016 • Co-organizer of Workshop on Agent-Based Modeling, Division of Applied Mathematics at Brown University, Providence, RI March 2015
TEACHING EXPERIENCE	<p>Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI</p> <p><u>TA for GirlsGetMath@ICERM: Summer Math Camp for High School Girls</u> August 2016 Facilitated learning of mathematical topics such as fractals and modular arithmetic through the use of lectures, worksheets, and Matlab labs. Co-led and created the materials for the day on Graphs and Applications.</p> <p>Division of Applied Mathematics, Brown University</p> <p><u>Instructor for Methods of Applied Math II</u> Summer 2015 Co-taught a course on systems of ordinary differential equations and introduction to partial differential equations during Undergraduate Summer Session at Brown. Designed lecture notes, homework assignments, exams, problem sessions and worksheets for the course. Facilitated group problem sessions as part of the AAU Undergraduate STEM Education Initiative, held office hours and organized review sessions.</p> <p><u>Teaching Assistant for Methods of Applied Math I (ODEs and Applications)</u> Spring 2014 Facilitated group problem sessions, held weekly office hours and organized review sessions.</p> <p><u>Teaching Assistant for Statistical Inference I (Probability and Statistics)</u> Fall 2013 Led recitations, held weekly office hours and organized review sessions.</p> <p><u>Guest Lectures</u></p> <p>Topics in Chaotic Dynamics (Nonlinear dynamics and chaos) Spring 2015 Methods of Applied Math I (Ordinary differential equations and applications) Spring 2014</p>
MENTORING EXPERIENCE	<p>Brown University, Providence, RI, USA</p> <p><i>Summer at ICERM REU: Dynamics and Stochastics</i> June – August 2016 Mentored undergraduates from different colleges in the US on a research project on “Stability of agent-based models” and a research project on “Lead propagation in the body” (in review at SIURO).</p> <p><i>Applied Math Undergraduate/Graduate Mentoring Program</i> January 2016 – present Mentored three female undergraduate students interested in Applied Math. Met at least once a month to discuss research, classes, graduate school, and the experience of studying Applied Math.</p> <p><i>Academic buddy for incoming graduate students</i> 2014, 2016 academic years Provided assistance to two graduate students starting their studies in the Division of Applied Math. Helped with settling in Providence and beginning their academic work at Brown.</p> <p><i>Brown Applied Mathematics REU</i> June 2015 – October 2016 Mentored undergraduates from different colleges in the US on a research project on “Epidemic spread on social networks”. Submitted a publication as a result of this research project.</p>
OUTREACH AND SERVICE	<p>Panelist for the Brown SIAM Postdoc Panel, Providence, RI May 2017</p> <p>Judge for the AWM Essay Contest (Grades 6-8) February 2017</p> <p>Judge at the MAA undergrad poster session at the Joint Math Meetings, Atlanta, GA January 2017</p> <p>Outreach presentation at the Johns Hopkins Center for Talented Youth Science Series on Math/Applied Math (high school students), Providence, RI December 2016</p> <p>Peer Mentor at the International Graduate Student Orientation, Providence, RI August 2016</p>

Lead organizer of the undergraduate **Brown Mathematical Contest for Modeling**,
Providence, RI Fall 2016, 2015

Vice President of Math Modeling Contest and Social Events for the **Brown SIAM Student Chapter**, Providence, RI
October 2015 – September 2016

Co-organizer of Panel on Jobs in Academia and the Industry, Division of Applied Mathematics at
Brown University, Providence, RI September 2015

Panelist for the Brown AWM Panel on Research and Internship opportunities for mathematics un-
dergraduate students, Providence, RI October 2014

Instructor for English for Action (high school mathematics), Providence, RI Fall 2014 – present

Member of the **Math CoOp (Mathematical outreach presentations)**, Providence, RI
Spring 2014 – present

Sheridan Center Departmental Liaison for the **Division of Applied Mathematics and Sheridan
Center for Teaching and Learning**, Providence, RI Fall 2014 – September 2016

Departmental discussion leader for the New TA Orientation at Brown for graduate students, Provi-
dence, RI September 2014

Vice President of **Association for Women in Math at Brown University**, Providence, RI
Fall 2013 – Spring 2014

Treasurer and event organizer for the **Rose Whelan Society for Women in Math, Brown
University**, Providence, RI Fall 2013 – September 2016

Math Volunteer at NECAmP at Hope High School, Providence, RI July - August 2013

Panelist for the Duke Panel on Mathematics Graduate School applications for undergraduate students,
Durham, NC Spring 2012