

# Anastasios Matzavinos

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CONTACT DETAILS	Address: Division of Applied Mathematics Brown University 182 George Street Providence, RI 02912	E-mail: <a href="mailto:matzavinos@brown.edu">matzavinos@brown.edu</a> Phone: (401) 863-5131 Fax: (401) 863-1355
RESEARCH INTERESTS	General research interests include applied mathematics and mathematical biology. A description of current interests can be found at: <a href="https://matzavinos.com">https://matzavinos.com</a>	
EMPLOYMENT	<b>Brown University</b>	<b>July 2013 – Present</b>
	<ul style="list-style-type: none"><li>• Assistant Professor, Tenure Track, Division of Applied Mathematics</li><li>• Affiliate Member (since 2018), Center for Computational Molecular Biology</li></ul>	
	<b>Iowa State University</b>	<b>August 2008 – July 2013</b>
	<ul style="list-style-type: none"><li>• Assistant Professor, Tenure Track, Department of Mathematics</li><li>• Graduate Faculty Member, Bioinformatics &amp; Computational Biology Program</li><li>• Faculty Member, L.H. Baker Center for Bioinformatics and Biological Statistics</li></ul>	
	<b>The Ohio State University</b>	<b>July 2007 – August 2008</b>
	<ul style="list-style-type: none"><li>• Visiting Assistant Professor, Department of Mathematics</li><li>• Long-Term Visitor, Mathematical Biosciences Institute</li></ul>	
	<b>University of Minnesota</b>	<b>August 2004 – July 2007</b>
	Postdoctoral associate, Department of Mathematics	
VISITING POSITIONS	<b>ETH Zürich</b>	<b>March 2016 – June 2016</b>
	Academic Guest, Computational Science and Engineering Laboratory	
	<b>University of Oxford</b>	<b>February 2009 – May 2009</b>
	Visiting Scholar, Oxford Centre for Collaborative Applied Mathematics	
EDUCATION	<b>University of Dundee, Scotland</b>	<b>2001 – 2004</b>
	Degree awarded: Ph.D. (Applied Mathematics) Advisor: Professor Mark A.J. Chaplain, <a href="mailto:majc@st-andrews.ac.uk">majc@st-andrews.ac.uk</a> Thesis: Mathematical modelling of the spatiotemporal response of cytotoxic T-lymphocytes to a solid tumour	
	<b>University of Athens, Greece</b>	<b>1998 – 2001</b>
	Degree awarded: M.Sc. (Graduate Program in Logic, Algorithms and Computation) Advisor: Professor Yiannis N. Moschovakis, <a href="mailto:ynm@math.ucla.edu">ynm@math.ucla.edu</a> Thesis: Ramsey theory and its applications	
	<b>University of Crete, Greece</b>	<b>1993 – 1998</b>
	Degree awarded: B.Sc. (Mathematics)	

HONORS AND  
AWARDS

Awarded a **Mathematical Biosciences Institute (MBI) Early Career Award** in 2011. More information on this award can be found at the MBI website.<sup>1</sup>

Nominated and elected full member of **Sigma Xi, The Scientific Research Society** in 2012.

RESEARCH  
GRANTS

NSF CAREER award #1552903. “**CAREER: Mesoscale Computational Modeling of Intracellular Soft Matter.**” Period of performance: June 1, 2016 – May 31, 2021. Principal Investigator: Anastasios Matzavinos.

NSF CDS&E-MSS award #1521266. “**Collaborative Research: Computational Modeling, Simulation, and Validation for Tissue Transplantation.**” Period of performance: August 1, 2015 – July 31, 2018. Principal Investigator: Anastasios Matzavinos.

Subcontract on “**Emerging Functions of Mitochondrial Fission in Postischemic Endothelial Cells.**” NIH R21 grant. Period of performance: April 1, 2011 – March 31, 2013. Principal Investigator: B. Rita Alevriadou (Ohio State). One-year subcontract awarded to Anastasios Matzavinos.

Subcontract on “**Imaging Agents for Diagnosis of Tauopathic Neurodegenerative Diseases.**” Funded by the Alzheimer’s Drug Discovery Foundation. Period of performance: January 1, 2009 – December 31, 2009. Principal Investigator: Jeff Kuret (Ohio State University). Subcontract awarded to Anastasios Matzavinos.

PUBLICATIONS

33. K. Larson, S. Olson, and **A. Matzavinos**, Bayesian uncertainty quantification for microswimmers with fully resolved hydrodynamics. *Submitted*, 2019.
32. K. Larson, C. Bowman, Z. Chen, P. Hadjidoukas, C. Papadimitriou, P. Koumoutsakos, and **A. Matzavinos**, Data-driven prediction and origin identification of epidemics in population networks. *Submitted*, 2019.
31. K. Larson, C. Bowman, C. Papadimitriou, P. Koumoutsakos, and **A. Matzavinos**, Detection of arterial wall abnormalities via Bayesian model selection. *Royal Society Open Science*, 6: 182229, 2019.
30. K. Larson, L. Zagkos, M. McAuley, J. Roberts, N. Kavallaris, and **A. Matzavinos**, Data-driven selection and parameter estimation for DNA methylation mathematical models. *Journal of Theoretical Biology*, 467: 87-99, 2019.
29. C. Bowman, M. Chaplain, and **A. Matzavinos**, Dissipative particle dynamics simulation of critical pore size in a lipid bilayer membrane. *Royal Society Open Science*, 6: 181657, 2019.
28. O. Angel, **A. Matzavinos**, and A. Roitershtein, Limit theorem for the Robin Hood game. *Statistics & Probability Letters*, 149: 9-15, 2019.
27. C. Bowman, K. Larson, A. Roitershtein, D. Stein, and **A. Matzavinos**, Bayesian uncertainty quantification for particle-based simulation of lipid bilayer membranes. In *Cell Movement: Modeling and Applications*, eds. M. Stolarska and N. Tarfulea. Springer, 2018.
26. T. Chumley, O. Aydogmus, **A. Matzavinos**, and A. Roitershtein, Moran-type bounds for the fixation probability in a frequency-dependent Wright-Fisher model. *Journal of Mathematical Biology*, 76 (1): 1-35, 2018.
25. D. Kim, C. Bowman, T. Del Bonis-O’Donnell, **A. Matzavinos**, and D. Stein, Giant acceleration of DNA diffusion in an array of entropic barriers. *Physical Review Letters*, 118 (4): 048002, 2017.

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<sup>1</sup><http://archive.mbi.ohio-state.edu/people/visitors/previous-early-career-awardees>

24. **A. Matzavinos**, A. Roitershtein, and Y. Seol, Random walks in a sparse random environment. *Electronic Journal of Probability*, vol. 21, paper no. 72, 20 pp., 2016.
23. M. Zayernouri and **A. Matzavinos**, Fractional Adams-Bashforth/Moulton methods: An application to the fractional Keller-Segel chemotaxis system. *Journal of Computational Physics*, 317: 1-14, 2016.
22. **A. Matzavinos** and M. Ptashnyk, Stochastic homogenization of the Keller-Segel chemotaxis system. *Nonlinear Analysis*, 144: 58-76, 2016.
21. **A. Matzavinos** and M. Ptashnyk, Homogenization of oxygen transport in biological tissues. *Applicable Analysis*, 95 (5): 1013-1049, 2016.
20. M. Sturrock, P.J. Murray, **A. Matzavinos**, and M. Chaplain, Mean field analysis of a spatial stochastic model of a gene regulatory network. *Journal of Mathematical Biology*, 71 (4): 921-959, 2015.
19. **A. Matzavinos**, B. Shtylla, Z. Voller, S. Liu, and M. Chaplain, Stochastic modeling of chromosomal segregation: Errors can introduce correction. *Bulletin of Mathematical Biology*, 76 (7): 1590-1606, 2014.
18. M. Sturrock, A. Hellander, **A. Matzavinos**, and M. Chaplain, Spatial stochastic modelling of the Hes1 gene regulatory network: Intrinsic noise can explain heterogeneity in embryonic stem cell differentiation. *Journal of the Royal Society Interface*, vol. 10 no. 80, 2013.
17. S. Liu, **A. Matzavinos**, and S. Sethuraman, Random walk distances in data clustering and applications. *Advances in Data Analysis and Classification*, 7 (1): 83-108, 2013.
16. R.J. Giedt, D.R. Pfeiffer, **A. Matzavinos**, C.-Y. Kao, and B.R. Alevriadou, Mitochondrial dynamics and motility inside living vascular endothelial cells: Role of bioenergetics. *Annals of Biomedical Engineering*, 40 (9): 1903-1916, 2012.
15. K.N. Schafer, S. Kim, **A. Matzavinos**, and J. Kuret, Selectivity requirements for diagnostic imaging of neurofibrillary lesions in Alzheimer's disease: A simulation study. *NeuroImage*, 60 (3): 1724-1733, 2012.
14. R.J. Giedt, C. Yang, J.L. Zweier, **A. Matzavinos**, and B.R. Alevriadou, Mitochondrial fission in endothelial cells after simulated ischemia/reperfusion: Role of nitric oxide and reactive oxygen species. *Free Radical Biology and Medicine*, 52 (2): 348-356, 2012.
13. I. Ben-Ari, **A. Matzavinos**, and A. Roitershtein, On a species survival model. *Electronic Communications in Probability*, 16: 226-233, 2011.
12. I. Ben-Ari, K. Boushaba, **A. Matzavinos**, and A. Roitershtein, Stochastic analysis of the motion of DNA nanomechanical bipeds. *Bulletin of Mathematical Biology*, 73 (8): 1932-1951, 2011.
11. O. Cominetti, **A. Matzavinos**, S. Samarasinghe, D. Kulasiri, S. Liu, P.K. Maini, and R. Erban, DiffFUZZY: A fuzzy spectral clustering algorithm for complex data sets. *Int. J. Comput. Intelligence in Bioinformatics and Systems Biology*. 1 (4): 402-417, 2010.
10. K. Preedy, P.G. Schofield, S. Liu, **A. Matzavinos**, M. Chaplain, S.F. Hubbard, Modelling contact spread of infection in host-parasitoid systems: vertical transmission of pathogens can cause chaos. *Journal of Theoretical Biology*. 262 (3): 441-451, 2010.<sup>2</sup>
9. B. Joshi, X. Wang, S. Banerjee, H. Tian, **A. Matzavinos**, and M. Chaplain, On immunotherapies and cancer vaccination protocols: A mathematical modelling approach. *Journal of Theoretical Biology*, 259 (4): 820-827, 2009.

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<sup>2</sup>Reference [10] has been one of the ScienceDirect Top 25 Hottest Articles for October 2009 - September 2010.

8. **A. Matzavinos**, C.-Y. Kao, J.E.F. Green, A. Sutradhar, M. Miller, and A. Friedman, Modelling oxygen transport in surgical tissue transfer. *PNAS*, 106 (29): 12091-12096, 2009.
7. E.E. Congdon, S. Kim, J. Bonchak, T. Songrug, **A. Matzavinos** and J. Kuret, Nucleation dependent tau filament formation: The importance of dimerization and an estimation of elementary rate constants. *Journal of Biological Chemistry*, 283 (20): 13806-13816, 2008.
6. **A. Matzavinos**, Dynamic irregular patterns and invasive wavefronts: The control of tumour growth by cytotoxic T-lymphocytes. In *Selected Topics in Cancer Modeling: Genesis, Evolution, Immune Competition, and Therapy*, eds. Nicola Bellomo, Mark A.J. Chaplain, and Elena De Angelis. Birkhäuser, 2008.
5. **A. Matzavinos** and H.G. Othmer, A stochastic analysis of actin polymerization in the presence of twinfilin and gelsolin. *Journal of Theoretical Biology*, 249 (4): 723-736, 2007.<sup>3</sup>
4. J. Hu, **A. Matzavinos**, and H.G. Othmer, A theoretical approach to actin filament dynamics. *Journal of Statistical Physics*, 128 (1): 111-138, 2007.
3. M. Chaplain and **A. Matzavinos**, Mathematical modelling of spatio-temporal phenomena in tumour immunology. In *Tutorials in Mathematical Biosciences III*, ed. Avner Friedman. Lecture Notes in Mathematics, vol. 1872, pp. 131-183. Springer, 2006.
2. **A. Matzavinos** and M.A.J. Chaplain, Travelling-wave analysis of a model of the immune response to cancer. *Comptes Rendus Biologies*, 327: 995-1008, 2004.
1. **A. Matzavinos**, M.A.J. Chaplain and V.A. Kuznetsov, Mathematical modelling of the spatio-temporal response of cytotoxic T-lymphocytes to a solid tumour. *Mathematical Medicine and Biology: A Journal of the IMA*, 21: 1-34, 2004.

CONTRIBUTED &  
INVITED TALKS

- “Mesoscopic modeling of DNA transport in an array of entropic barriers,” **May 2019**  
Invited talk. Conference on Multiscale Modeling in Biology,  
(In honor of Hans Othmer’s 75th birthday.) Minnesota, USA.
- “Computational approaches to mesoscale modeling of soft matter,” **November 2018**  
Invited talk at the Materials Research Science and Engineering Center,  
Brandeis University, Waltham, Massachusetts, USA.
- “Bayesian UQ for particle-based simulation of lipid bilayer membranes,” **October 2018**  
Invited talk. Special Session on *Cell Motility: Models and Applications*,  
AMS Fall Central Sectional Meeting. University of Michigan, USA.
- “Bayesian UQ for particle-based simulation of lipid bilayer membranes,” **July 2018**  
Invited talk. Special Session on *Randomness Meets Life*,  
The 2018 AIMS Conference on Dynamical Systems. Taipei City, Taiwan.
- “Bayesian UQ for particle-based simulation of lipid bilayer membranes,” **May 2018**  
Colloquium talk. Center for Computational Molecular Biology, Brown, USA.
- “Bayesian UQ for particle-based simulation of lipid bilayer membranes,” **April 2018**  
Invited talk. Special Session on *Modeling of Biological Processes*,  
AMS Spring Eastern Sectional Meeting. Northeastern University, Boston, USA.
- “Mesoscopic modeling of polymer transport in an array of entropic barriers,” **July 2016**  
Invited talk. Minisymposium on *Cytoskeletal Organization and Growth Dynamics*,  
The 2016 SIAM Conference on the Life Sciences. Boston, Massachusetts, USA.

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<sup>3</sup>Reference [5] has been one of the ScienceDirect Top 25 Hottest Articles for October 2007 - December 2007.

- “Mesoscopic modeling of DNA transport in an array of entropic barriers,” **July 2016**  
Invited talk. Special Session on *Randomness Meets Life*,  
The 2016 AIMS Conference on Dynamical Systems. Orlando, Florida, USA.
- “Mesoscopic modeling of DNA transport in an array of entropic barriers,” **March 2016**  
Invited talk. Workshop on *Multiscale Methods for Stochastic Dynamical Systems*,  
International Centre for Mathematical Sciences. University of Edinburgh, Scotland.
- “Mesoscopic modeling of DNA transport in an array of entropic barriers,”<sup>4</sup> **February 2016**  
Invited talk. Workshop on *Modeling and Inference from Single Molecules to Cells*,  
Mathematical Biosciences Institute. The Ohio State University.
- “Dissipative particle dynamics simulations of polymer networks,” **August 2015**  
Invited talk. Minisymposium on *Stochastic Dynamics in Cellular-Scale Biology*,  
International Congress on Industrial and Applied Mathematics. Beijing, China.
- “Dissipative particle dynamics simulations of polymer networks,” **June 2015**  
Contributed talk. Annual Meeting of the Society for Mathematical Biology,  
Atlanta, GA, USA.
- “Dissipative particle dynamics simulations of polymer networks,” **March 2015**  
Invited talk. Special Session on Biomathematics, AMS Central Sectional Meeting,  
Michigan State University.
- “Dissipative particle dynamics simulations of polymer networks,”<sup>5</sup> **November 2014**  
Invited talk at the Banff International Research Station for Mathematical  
Innovation and Discovery.
- “Stochastic homogenization of the Keller-Segel chemotaxis system,” **November 2014**  
Applied Analysis & Computation Seminar. University of Massachusetts Amherst.
- “Random walk distances in data clustering and applications,” **October 2014**  
Invited talk. Center for Computational Molecular Biology, Brown University.
- “Stochastic homogenization of the one-dimensional Keller-Segel system,” **September 2014**  
Probability Seminar. Division of Applied Mathematics, Brown University.
- “Stochastic homogenization of the one-dimensional Keller-Segel system,” **July 2014**  
Contributed talk. The 2014 SIAM Annual Meeting, Chicago, Illinois, USA.
- “A stochastic analysis of the motion of DNA nanomechanical bipeds,” **December 2013**  
Invited talk at the Stochastic Analysis and Nonlinear Dynamics Lab, MIT.
- “A stochastic analysis of the motion of DNA nanomechanical bipeds,” **November 2013**  
Colloquium talk. Materials/solid mechanics seminar series, Brown University.
- “A stochastic analysis of the motion of DNA nanomechanical bipeds,” **February 2012**  
Colloquium talk. Division of Applied Mathematics, Brown University.
- “Random walk distances in data clustering and applications,”<sup>6</sup> **November 2011**  
Colloquium talk. Mathematical Biosciences Institute, Ohio State University.
- “Random walk distances in data clustering and applications,” **November 2011**  
Biomathematics Research Forum, Case Western Reserve University.

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<sup>4</sup>A video of this talk can be found online at: <https://mbi.osu.edu/video/player/?id=3829>

<sup>5</sup>A video of this talk can be found online at: <https://doi.org/10.14288/1.0044735>

<sup>6</sup>A video of this talk can be found online at: <https://mbi.osu.edu/video/player/?id=835>

- “A stochastic analysis of the motion of DNA nanomechanical bipeds,” **September 2011**  
Colloquium talk. Mathematical Biosciences Institute, Ohio State University.
- “A random walk approach to clustering biological data,” **July 2010**  
SIAM Conference on the Life Sciences, Pittsburgh, USA.
- “Mathematical developments in cell and systems biology,” **April 2010**  
Special session introduction talk. AMS Central Section Meeting, Twin Cities.
- “Spectral clustering methods in data and image analysis,” **April 2010**  
SIAM Great Lakes Conference. University of Michigan - Dearborn.
- “Spectral clustering methods in data and image analysis,” **February 2010**  
Mechanical Engineering Colloquium Series, Iowa State University.
- “A random walk approach to clustering biological data,” **October 2009**  
Colloquium talk. University of Iowa, Iowa City, Iowa.
- “Spectral clustering methods in data and image analysis,” **September 2009**  
Colloquium talk. Division of Applied Mathematics, Brown University.
- “Modeling oxygen delivery in surgically reconstructed tissues,” **July 2008**  
Fifth World Congress of Nonlinear Analysts, Orlando, Florida.
- “Theoretical approaches to actin filament dynamics,” **May 2008**  
Colloquium talk. Ohio University, Athens, Ohio.
- “Mathematical modeling of eukaryotic cell motility,” **April 2008**  
Special session introduction talk. AMS Central Section Meeting, Indiana.
- “Theoretical approaches to actin filament dynamics,” **March 2008**  
Colloquium talk. Michigan State University, East Lansing, Michigan.
- “Theoretical approaches to actin filament dynamics,” **February 2008**  
Colloquium talk. Iowa State University, Ames, Iowa.
- “Deterministic and stochastic aspects of actin filament dynamics,” **September 2007**  
Biomedical Engineering Colloquium Series, Ohio State University.
- “Deterministic and stochastic aspects of actin filament dynamics,” **February 2007**  
Mathematical Biosciences Institute Colloquium Series, Ohio State University.
- “Deterministic and stochastic aspects of actin filament dynamics,” **November 2006**  
Dynamical Systems Seminar Series. University of Minnesota, Twin Cities.
- “Computational approaches to actin filament dynamics,” **July 2006**  
International Conference on “Which Mathematics for Biology?” Crete, Greece.
- “Deterministic and stochastic aspects of actin filament dynamics,” **April 2006**  
Cell Motility Workshop. Digital Technology Center, University of Minnesota.
- “New analytical and computational approaches to actin-based cell motility,” **March 2005**  
First Young Researchers Workshop in Mathematical Biology, Ohio State University.

Ph.D. STUDENT  
ADVISING

- **Current students:**
  - Karen Larson, Ph.D. candidate in Applied Mathematics, Brown University.  
Research interests: Bayesian uncertainty quantification and mathematical biology.
  - Jose Celaya-Alcala, Ph.D. student in Applied Mathematics, Brown University.

• **Previous students:**

- Clark Bowman, Ph.D. in Applied Mathematics (2018), Brown University.  
Current position: Research Assistant Professor (Mathematics), University of Michigan.  
Thesis topic: Data-calibrated modeling of biological soft matter with dissipative particle dynamics and high-performance Bayesian uncertainty quantification
- Sijia Liu, Ph.D. in Applied Mathematics (2011), Iowa State University.  
Thesis topic: Novel data clustering methods and applications

TEACHING  
EXPERIENCE

**Brown University**

- |  |                    |
|--|--------------------|
| 1. Introduction to Stochastic Differential Equations (APMA 1930) | <b>Fall 2019</b>   |
| 2. Operations Research: Probabilistic Models (APMA 1200)         | <b>Spring 2019</b> |
| 3. Applied Partial Differential Equations II (APMA 1330)         | <b>Fall 2018</b>   |
| 4. Nonlinear Dynamical Systems II (APMA 2200)                    | <b>Spring 2018</b> |
| 5. Nonlinear Dynamical Systems I (APMA 2190)                     | <b>Fall 2017</b>   |
| 6. Operations Research: Probabilistic Models (APMA 1200)         | <b>Spring 2017</b> |
| 7. Undergraduate Independent Study (APMA 1970)                   | <b>Spring 2017</b> |
| 8. Quantitative Models of Biological Systems (APMA 1070)         | <b>Fall 2016</b>   |
| 9. Nonlinear Dynamical Systems I (APMA 2190)                     | <b>Fall 2015</b>   |
| 10. Filtering and Prediction of Hidden Markov Models (APMA 1940) | <b>Spring 2015</b> |
| 11. Undergraduate Directed Research (BIOL 1960)                  | <b>Spring 2015</b> |
| 12. Introduction to Computational Linear Algebra (APMA 1170)     | <b>Fall 2014</b>   |
| 13. Stochastic Epidemic Models in Random Networks (APMA 2821)    | <b>Spring 2014</b> |
| 14. Quantitative Models of Biological Systems (APMA 1070)        | <b>Fall 2013</b>   |

**Iowa State University**

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|---|--------------------|
| 15. Methods of Applied Mathematics II (Math 520)                        | <b>Spring 2013</b> |
| 16. Methods of Applied Mathematics I (Math 519)                         | <b>Fall 2012</b>   |
| 17. Matrices and Linear Algebra (Math 307)                              | <b>Fall 2012</b>   |
| 18. Computational Functional Genomics and Systems Biology (BCB 570)     | <b>Spring 2012</b> |
| 19. Introduction to Proofs (Math 201)                                   | <b>Spring 2011</b> |
| 20. Matrices and Linear Algebra (Math 307)                              | <b>Fall 2010</b>   |
| 21. Theory of Linear Algebra (Math 317)                                 | <b>Fall 2010</b>   |
| 22. Inverse Problems in Medical Imaging (Math 590)                      | <b>Summer 2010</b> |
| 23. Methods of Applied Mathematics II (Math 520)                        | <b>Spring 2010</b> |
| 24. Methods of Applied Mathematics I (Math 519)                         | <b>Fall 2009</b>   |
| 25. Elementary Differential Equations and Laplace Transforms (Math 267) | <b>Fall 2008</b>   |
| 26. Calculus I (Math 165)   | <b>Fall 2008</b>   |

**The Ohio State University**

- |   |                    |
|---|--------------------|
| 27. Partial Differential Equations and Boundary Value Problems (Math 512) | <b>Spring 2008</b> |
| 28. Linear Algebra for Applications II (Math 572)                         | <b>Winter 2007</b> |

29. Linear Algebra for Applications I (Math 571)

Fall 2007

**University of Minnesota, Twin Cities**

30. Sequences, Series, and Foundations (Math 3283)

Spring 2007

31. Sequences, Series, and Foundations (Math 3283)

Spring 2006

PROFESSIONAL  
SERVICE

- Grant proposal review panels:
  - Served on the MIT Sea Grant Technical Review Panel.
  - Served as a panelist on four (4) NSF proposal review panels.
  - Served as an external evaluator for the Greek research programs Thales and Archimedes III.
- Conference and special session organization:
  - Organizer of a special session on *Multiscale Methods in Cell and Developmental Biology* in the 2015 AMS Eastern Sectional Meeting, Rutgers University, New Brunswick, New Jersey.
  - Member of the organizing committee for the 2013 AMS Spring Central Section Meeting.
  - Organizer of a special session on *Probabilistic and Multiscale Modeling Approaches in Cell and Systems Biology* in the 2013 AMS Spring Central Section Meeting, Ames, Iowa.
  - Organizer of a special session on *Mathematical Developments in Cell and Systems Biology* in the 2010 AMS Spring Central Section Meeting, Macalester College, Saint Paul, Minnesota.
  - Organizer of a special session on the *Mathematical Modeling of Eukaryotic Cell Motility* in the 2008 AMS Spring Central Section Meeting, Indiana University, Bloomington, Indiana.
- Served as an external reviewer for a promotion and tenure case at the Department of Mathematics, Computer Science, and Statistics of Purdue University Calumet. **Fall 2011**
- External examiner for a Ph.D. viva exam at the University of Dundee, Scotland. **Fall 2011**
- Part of a discussion panel at the Mathematical Biosciences Institute, Ohio State University in the context of a Workshop for Young Researchers. **Fall 2011**
- Refereed papers for the following journals:
 

◦ Mathematical Medicine and Biology: A Journal of the IMA	5 papers reviewed
◦ IEEE Journal of Biomedical and Health Informatics	1 paper reviewed
◦ Advances in Data Analysis and Classification	1 paper reviewed
◦ Applied Mathematics and Computation	1 paper reviewed
◦ SIAM Journal on Applied Mathematics	1 paper reviewed
◦ IEEE Transactions on Fuzzy Systems	1 paper reviewed
◦ Computer Physics Communications	1 paper reviewed
◦ Journal of Computational Physics	4 papers reviewed
◦ Bulletin of Mathematical Biology	9 papers reviewed
◦ Journal of Mathematical Biology	9 papers reviewed
◦ Journal of Scientific Computing	2 papers reviewed
◦ Journal of Theoretical Biology	16 papers reviewed
◦ Journal of Applied Probability	1 paper reviewed
◦ Applied Mathematics Letters	2 papers reviewed
◦ Journal of Nonlinear Science	1 paper reviewed



- Journal of Chemical Physics 1 paper reviewed
- Mathematical Biosciences 2 papers reviewed
- Nature Communications 1 paper reviewed
- BMC Bioinformatics 2 papers reviewed
- Biophysical Journal 1 paper reviewed
- PLOS ONE 2 papers reviewed

INSTITUTIONAL  
SERVICE

**Brown University**

- Library representative for the Division of Applied Mathematics. **2018 – Present**
- Member of the Applied Mathematics undergraduate advisory committee. **2013 – 2018**
- Member of the PhD thesis committees for the following PhD candidates:
  - Michael Snarski (Applied Math). Thesis advisor: Paul Dupuis **December 2018**
  - Yinghong Lan (EEB). Thesis advisor: Daniel Weinreich **August 2018**
  - Leroy Jia (Applied Math). Thesis advisor: Thomas Powers **May 2018**
  - Clark Bowman (Applied Math). Thesis advisor: Anastasios Matzavinos **April 2018**
  - Daniel Kim (Physics). Thesis advisor: Derek Stein **January 2017**
  - Eirini Kilikian (Applied Math). Thesis advisor: Martin Maxey **January 2017**
  - Changho Kim (Applied Math). Thesis advisor: George Karniadakis **April 2015**
  - Andrew Nixon (Applied Math). Thesis advisor: Björn Sandstede **April 2015**
- Member of the PhD preliminary examination committees for the following graduate students: Yinghong Lan (Ecology and Evolutionary Biology), Yin-Ting Liao (Applied Mathematics), Andrew Kaluzny (Applied Mathematics), Taewoo Kim (Applied Mathematics), Ankan Ganguly (Applied Mathematics), Karen Larson (Applied Mathematics), Pooja Agarwal (Applied Mathematics), Ian Alevy (Applied Mathematics), Veronica Ciocanel (Applied Mathematics), and Clark Bowman (Applied Mathematics).
- Served or currently serving as reader (secondary advisor) for the capstone theses of the following students at Brown: Runhan Xie, Rigel Galgana, Kenneth Peluso, Nikolas Baya, Hwai-Ray Tung, Amanda Zajac, Sovijja Pou, Chibuikem Nwizu, Jacob Jaffe, Ian Pan, Elena Venable, David Correa Orozco, Nathan Thomas, and Ryan Din.
- Served or currently serving as primary advisor for the capstone theses of Jack Karafotas, Alexandra Djorno, and Ali Noel Gunesch.
- Served as a BIOL 1950/1960 project sponsor for Elena Venable.

**Iowa State University**

- Faculty Senator; elected by colleagues to represent the Department of Mathematics. **2009 – 2013**
- Departmental Committee Membership:
  - Bioinformatics & Computational Biology (BCB) Curriculum Committee **2012 – 2013**
  - Mathematics Department Chair Search Committee (elected member) **2012 – 2013**
  - Applied Mathematics Qualifying Examination Committee (member) **2011 – 2012**
  - Mathematics Department Advisory Committee (elected member) **2010 – 2012**

- Applied Mathematics Qualifying Examination Committee (chair) **2010 – 2011**
- Applied Mathematics Qualifying Examination Committee (member) **2009 – 2010**
- Chair of the Mathematics Colloquium Committee for two consecutive years. **2008 – 2010**
- Member of the Program of Study (POS) committee for the following graduate students:  
 Yue Hou (Chemical and Biological Engineering); Brian Estervig (Applied Mathematics); Zachary Voller (Applied Mathematics); Man Basnet (Applied Mathematics); Chunquan Tang (Mathematics); David Failing (Mathematics); Jing Wang (Applied Mathematics); Jeremy Knutson (Applied Mathematics); Ozgur Aydogmus (Applied Mathematics); Jose Ponce (Mathematics); Cory Howk (Applied Mathematics); Sijia Liu (Applied Mathematics); Dominic Kramer (Mathematics); Travis Peters (Mathematics).

PRIOR SERVICE

- Organized the Mathematical Biosciences Institute Colloquium Series at the Ohio State University for the academic year 2007-08.
- Served as a project leader for the 2007 Graduate Summer School of the Mathematical Biosciences Institute, Ohio State University.
- Organized the Mathematical Biology Seminar and Journal Club at the School of Mathematics, University of Minnesota for the academic year 2006-07.