

CURRICULUM VITAE

Zoi Rapti

Fall 2020

- EDUCATION:** 2004 Ph.D. in Mathematics, University of Massachusetts, Amherst.
2001 M.A. in Mathematics, University of Massachusetts, Amherst.
1999 B.S/M.S. in Mechanical Engineering, National Technical University of Athens, Greece.
- Ph.D. THESIS:** Modulational Instabilities of Perturbed Nonlinear Schrödinger-type Equations.
- RESEARCH AREAS:** Differential Equations, Mathematical Biology, Mathematical Modeling.
- POSITIONS:** 2015 – present Associate Professor, University of Illinois at Urbana-Champaign.
2008 – 2015 Assistant Professor, University of Illinois at Urbana-Champaign.
2005 – 2008 J. L. Doob Research Assistant Professor, University of Illinois at Urbana-Champaign.
June-August 2005/ November 2005–2008, Visiting Scientist / Consultant, Beth Israel Deaconess Medical Center – teaching hospital of Harvard Medical School.
2004 – 2005 Visitor, Institute for Advanced Study.
June-July 2004, October-November, and July 2005 Affiliate, Center for Nonlinear Studies, Los Alamos National Laboratory.
1999 – 2004 Teaching Assistant, University of Massachusetts.

AWARDS AND HONORS:

- Campus Award for Excellence in Undergraduate Teaching – Faculty in 2020
- LAS Dean’s Award for Excellence in Undergraduate Teaching in 2020
- Distinguished Teaching Award in Mathematics for Tenured Faculty in 2017
- N. Tenney Peck Teaching Award in Mathematics in 2013
- LAS Dean Teaching Fellow, University of Illinois at Urbana- Champaign, 2011-2012.
- Graduate School Scholarship, Univ. of Massachusetts, 2003.
- Papakyriakopoulos Award for Undergraduate Thesis on Mathematics, 1999.
- Zosimas Scholarship for Excellence in Academic Work, 1995-1999.

GRANTS:

- NSF Grant DMS 1928749, 2019-2020 (PI: Z. Rapti, co-PIs: V. Hur, R. Kedem and S. Tolman) \$40,000 (conference grant for GROW 2019)
- IMA Conference grant \$4,000 for GROW 2019 (PI Z. Rapti, co-PI V. Hur)

- NSF Grant DMS 1815764, 2018-2021 (PI: Z. Rapti, co-PI: C. E. Caceres) \$209,894. (2 months of summer salary for Rapti and 1 month of summer salary for a graduate student).
- NSF Grant DEB 1754115, 2018-2021 (PI: C. E. Caceres, co-PIs: A. Hansen, Z. Rapti, B. Allan, E. Muturi) \$800,000
- UIUC Campus Research Board (PI: Z. Rapti) RB17060, \$14, 115.
- NSF Grant DUE 1544388, 2015-2017 (PI: G. Herman, co-PIs: J. Amos, J. B. Elliott-Litchfield, Z. Rapti) \$299, 207.
- NSF Grant DEB 1354407, 2014-2017 (PI: C. E. Caceres, co-PI: Z. Rapti) \$324, 380.
- UIUC Campus Research Board (PI: Z. Rapti) RB14038, \$16, 139.
- NSF Grant DUE 1129198, 2011-2016 (PI: Z. Rapti, co-PIs: C. E. Caceres, R. E.L. DeVille, R. Kantorovitz) \$239, 520.
- NSF Grant EFRI 1024772, 2010-2013 (PI. N. Sri Namachchivaya, co-PI: Z. Rapti) \$288, 575.
- I-cubed Grant (UIUC) (PI: Z. Rapti), 2010 \$10, 000.
- NSF Grant DMS 0708421 (PI: Z. Rapti) \$85, 442.

TALKS

- SIAM Conference on Nonlinear Waves and Coherent Structures, Minisymposium speaker, July 27 – 30, 2020 at the University of Bremen, Bremen, Germany (canceled due to COVID-19)
- Plenary speaker in the Midwest Mathematical Biology Conference, May 16-17, 2020 at Illinois State University (canceled due to COVID-19)
- Biomathematics Seminar at the Rose-Hulman Institute of Technology, October 25, 2019
- Society for Mathematical Biology Annual Meeting, July 22-26 2019, Montreal, Canada.
- The 11th IMACS international conference on nonlinear evolution equations and wave phenomena: Computation and Theory, Athens, GA, April 17-19, 2019.
- Analysis/Applied Mathematics Seminar, University of Wisconsin, Milwaukee, September 21, 2018.
- First Congress of Greek Mathematicians, Special Session in Differential Equations and Dynamical Systems, June 25-30, 2018, Athens, Greece.
- Workshop for women in Mathematical Biology, May 29-31, 2018, IMA, University of Minnesota, Minneapolis (one of the invited speakers).
- Symposium on dynamical systems and related fields, May 15-18, 2018, University of Waterloo, Ontario, Canada.
- Model Parameterisation in Healthcare and Life Sciences: Extracting Knowledge from Data, IAS Birmingham, UK, December 11, 2017. (One of few invited speakers).
- Salah Mohammad Memorial Colloquium, Carbondale Illinois, November 16, 2017.

- Symposium on Biomathematics, Ecology, Education and Research, Illinois State University, Normal, IL, October 6-8, 2017.
- Program in Ecology, Evolution and Conservation Biology Seminar, UIUC, September 20, 2017.
- Langenhop Lecture and SIU Mathematics Conference, Carbondale Illinois, May 15-16, 2017.
- SIAM Conference on Nonlinear Waves and Coherent Structures, Minisymposium: Analysis and applications of the NLSE, Philadelphia, Pennsylvania, August 8-11, 2016.
- Technical University of Crete, Sector of Mathematics, June 15, 2016.
- National Technical University of Athens, School of Applied Mathematical and Physical Sciences, June 9, 2016.
- AMS Spring Southeastern Sectional Meeting, Special Session on Bioinformatics and Molecular Biology: Dynamic Models, Structural Analysis, and Computational Methods, University of Georgia, Athens, GA, March 5-6, 2016.
- Symposium on Biomathematics, Ecology, Education and Research, Illinois State University, Normal, IL, October 9-11, 2015.
- Centre for Mathematical Biology, Mathematical Biology Seminar Series, University of Alberta, Edmonton, January 27, 2014.
- Oberwolfach Institute, Workshop on Lattice Differential Equations, September 16-20, 2013, Oberwolfach, Germany.
- Society for Mathematical Biology Annual Meeting and Conference, June 10-13 2013, Tempe, AZ.
- The 8th IMACS international conference on nonlinear evolution equations and wave phenomena: Computation and Theory, Athens, GA, March 25-28, 2013.
- Centre for Mathematical Biology, Mathematical Biology Seminar Series, University of Alberta, Edmonton, February 25, 2013.
- IMSE UIUC, February 6, 2013.
- Symposium on Biomathematics, Ecology, Education and Research, St. Louis, Missouri, November 9-11, 2012.
- AMS Fall Western Sectional Meeting, University of Arizona, Tuscon, AZ, October 27-28, 2012.
- Society for Mathematical Biology Annual Meeting and Conference, July 25-28 2012, Knoxville, TN.
- 2nd Conference on Localized Excitations in Nonlinear Complex Systems (LENCOS '12) Sevilla, Spain, July 9-12, 2012.
- SIAM Conference on Nonlinear Waves and Coherent Structures, The University of Washington, Seattle, WA, June 13-16, 2012.
- AMS Spring Central Meeting, University of Kansas, Lawrence, KS, March 30-April 1, 2012.

- Applied Mathematics Seminar, Colorado State University, Fort Collins, March 1, 2012.
- Symposium on Biomathematics, Ecology, Education and Research, University of Portland, Portland, Oregon, December 17-18, 2011.
- Applied Analysis and Computation Seminar, University of Massachusetts, Amherst, November 1, 2011.
- 7th European Nonlinear Dynamics Conference (ENOC), Rome, Italy, July 25-29, 2011.
- NSF BECS Grantee Workshop, Arlington, VA, March 28-29, 2011.
- Symposium on Biomathematics, Ecology, Education and Research, Illinois State University, Normal IL, September 4-5, 2010.
- SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, Pennsylvania, August 16-19, 2010.
- Applied and Numerical Analysis Seminar, Department of Applied Mathematics, University of Crete, Greece, June 8, 2010.
- Seminar of the School of Applied Mathematics and Physical Sciences, National Technical University of Athens, Greece, June 3, 2010.
- Theoretical and Computational Biology Seminar, University of Illinois at Urbana-Champaign, April 19, 2010.
- Mathematical Biology Seminar, Department of Mathematics, University of Illinois at Urbana-Champaign, April 16, 2009.
- Bioinformatics Seminar, Department of Computer Science, University of Illinois at Urbana-Champaign, April 10, 2009.
- MATH 499 Seminar, Department of Mathematics, University of Illinois at Urbana-Champaign, April 8, 2009, April 11, 2012, September 3, 2014 and April 3, 2017.
- Bioinformatics Seminar, Department of Computer Science, University of Illinois at Urbana-Champaign, September 26, 2008.
- Symposium on Biomathematics, Ecology, Education and Research, Illinois State University, September 6, 2008.
- Research Experiences for Undergraduates, Department of Mathematics, University of Illinois at Urbana-Champaign, June 10, 2008.
- Colloquium, Department of Mathematics, University of Central Florida, January 31, 2008.
- Special Lecture, Department of Mathematics, SUNY at Buffalo, January 22, 2008.
- Mathematics Colloquium, Department of Mathematics, University of Alabama at Birmingham, January 11, 2008.
- SIAM Conference on Analysis of Partial Differential Equations, Mesa, Arizona, December 10-12, 2007.

- Mathematics Colloquium-Special Lecture 2007-08, Department of Mathematics, University of Illinois at Urbana-Champaign, December 10, 2007.
- Colloquium, Department of Mathematics, University of North Texas, December 6, 2007.
- The Fifth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena, Georgia Center, Athens, Georgia, April 16-19, 2007.
- Colloquium/Analysis Seminar, Department of Mathematics, University of New Mexico, March 6, 2007.
- CMS 2006 Winter Meeting, Toronto, Canada, December 8-11, 2006.
- SIAM Conference on Nonlinear Waves and Coherent Structures, Seattle, Washington, September 9-12, 2006.
- Young Mathematicians' Conference in PDE and Dynamical Systems III, Fields Institute, April 28-29, 2006.
- Harmonic Analysis and Mathematical Physics Seminar, University of Illinois, April 25, 2006.
- Seminar for Women in Mathematics, University of Illinois, April 11, 2006, December 4, 2007, October 15, 2010.
- AMS Sectional Meeting, Miami, Florida International University, April 1-2, 2006.
- Applied Math/PDE/Analysis Seminar, University of Toronto, March 17, 2006.
- Graduate Student Seminar, University of Illinois, October 24, 2005.
- Beth Israel Deaconess Medical Center, January 25, 2005.
- Institute for Advanced Studies, September 21, 2004.
- Graduate Student Seminar, University of Massachusetts, May 5, 2004.
- SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 27-31, 2003.

MEETINGS ATTENDED

- NIMBioS Tutorial on Parameter Estimation for Dynamic Biological Models, University of Tennessee, Knoxville, May 19-21, 2014.
- Workshop for Young Researchers in Mathematical Biology, Mathematical Biosciences Institute, Ohio State University, September 2-4, 2008.
- New Directions Short Course: Mathematical Neuroscience, Institute for Mathematics and its Applications, University of Minnesota, June 16 - 27, 2008.
- Introductory Workshop on Dynamical Systems with Emphasis on Extended Systems, Mathematical Sciences Research Institute, Berkeley, California, January 22-26, 2007.
- Low Eigenvalues of Laplace and Schrödinger Operator, American Institute of Mathematics, Palo Alto, California, May 22-26, 2006.
- Program for Women in Mathematics, Analysis and Nonlinear PDE's, Institute for Advanced Study and Princeton University, May 17-28, 2004.
- Emerging Applications of the Nonlinear Schrödinger Equations, IPAM, University of California at Los

Angeles, February 3-7, 2003.

- Industrial Mathematics Modeling Workshop for Graduate Students, North Carolina State University, Raleigh, July 23-31, 2001.

TEACHING EXPERIENCE: COURSES TAUGHT AND STUDENT MENTORING

2005–present University of Illinois at Urbana-Champaign

- A Mathematical World – Math 181 (formerly Math 118).
- Open undergraduate Seminar (Mathematical Biology) – Math 199. (Listed among the professors ranked as excellent by their students in the fall semester of 2011.)
- Calculus (Multi-section class) – Math 220.
- Calculus II (Multi-section class) – Math 230.
- Introduction to Differential Equations – Math 285 (formerly Math 385).
- Independent Study – Math 390.
- Differential Equations – Math 441 (Listed among the professors ranked as excellent by their students in the Spring semester of 2016).
- Introduction to Partial Differential Equations – Math 442. (Listed among the professors ranked as excellent by their students in the Fall semester of 2011 and the Fall semester of 2014.)
- Differential Equations II – Math 489. (Listed among the professors ranked as excellent by their students in the Fall semesters of 2006, 2014 and 2016.)
- Dynamical Systems I – Math 550.
- Partial Differential Equations – Math 553. (Listed among the professors ranked as excellent by their students in the spring semesters of 2011 and 2012.)
- Interdisciplinary seminar on mosquito-borne diseases – Math 598.

1999–2004 University of Massachusetts at Amherst

- Calculus I (for Business and Biology students) – Math 127.
- Calculus I (for Science and Engineering students) – Math 131.
- Calculus II (for Science and Engineering students) – Math 132.
- Calculus III (for Science and Engineering students) – Math 233.

Student Mentoring

1. Spring 2020: Iftikhar Ahmed received his PhD in mathematics under my supervision.
2. Spring 2019: Vanessa Rivera Quinones received her PhD in mathematics under my supervision.
3. Fall 2018: offered undergraduate reading course to Cruz Castillo.
4. Spring 2018: co-supervised with S. Clifton 3 undergraduate students on an IGL project.
5. Spring 2018: supervised Karan Srivastava (undergraduate) on a project regarding the statistical analysis and mathematical model of host-parasite interactions in a plant-rhizobia system.
6. Spring 2018: supervised Cruz Castillo (undergraduate) on a modeling project of Daphnia population dynamics with varying genotypes, two food-sources and parasites.
7. Spring 2017: supervised Megan Coleman (undergraduate) on a project based on a game theoretical model of fish behavior.

8. Spring 2017: supervised Dana Drinkall (undergraduate) on a project based on a cellular automaton model of crystal growth.
9. Spring 2017: offered reading course to Justin Valletta (MS Mathematics).
10. Spring 2017: reading course to Shinhae Park (PhD Mathematics).
11. Spring 2016: supervised Diana Kowalski (Mathematics, undergraduate) on a modeling problem of the network of European languages.
12. Spring 2016: supervised Anton Bershanskiy (Mathematics, undergraduate) on a modeling project of polinator-plant mutualistic networks.
13. Spring 2016: offered a reading course to He Jiang (MS Mathematics).
14. Spring 2015: supervised Daniel Carballal (Mathematics, undergraduate) on a project related to a stochastic Ebola model.
15. Spring 2015: supervised Bridget Mueller-Brennan (Mathematics, undergraduate) on a modeling project of the dynamics of sea star wasting disease. Bridget's poster presentation at the 2015 Researcher's Initiative Poster Symposium earned her an Honorable Mention - Poster Presentation - Health which includes a cash award in the amount of \$100.
16. Summer 2014: worked with 3 graduate students under the auspices of PI4 (Program for Interdisciplinary and Industrial Internships at Illinois). Specifically, (a) Daniel Carmody worked on gene regulatory networks; (b) Elizabeth Merriman worked on DNA origami; (c) Vanessa Rivera-Quinones worked on the evolution of virulence in epidemics.
17. Spring 2014: worked Chiho Moon (Mathematics, undergraduate) and Sneha Shrivastan (Statistics, undergraduate) on a project related to the spread dynamics of rumors on Twitter. Their poster presentation at the 2014 Researcher's Initiative Poster Symposium earned them the Stevick Foundation Excellence in Media Research award which includes a cash award in the amount of \$250.
18. BIOMATH program: acted as director/mentor/project supervisor for several years. Offered reading courses to Sheila O'Connor (spring 2014), Adam Koss (spring 2012), and Glynn Davis (spring 2012 and 2013 and fall 2012) on subjects related to the analysis and bifurcations in ecological models based on systems of ODEs. Offered a reading course to Rachel Poe on the analysis of reaction networks (spring 2013).
19. I co-advised (jointly with Sydney A. Cameron) the graduate student Juraj Cech, in the Department of Entomology, who received his Master's Degree in the Spring of 2011.
20. Summer 2011: supervised (jointly with Jared Bronski), the incoming graduate student Argen West. He was participating in the Summer Pre- doctoral Institute at UIUC.
21. Fall 2011: offered a graduate reading course to Nate Orlow.
22. Fall 2011: offered a graduate reading course to Agustinus Peter Sahanggamu.
23. Spring 2011: offered a graduate reading course, MATH 597, to Sarah Son.
24. Spring 2011: co-advisor for teams in the Mathematical Contest in Modeling. (Honorable mention.)

25. Summer 2009: under my supervision Zaynaib Giwa was accepted as a participant in the 2009 Ronald E. McNair Research Institute.

Postdoc Mentoring

- Spring 2020: working with Katelyn Leisman on a project on epidemic models.
- Fall 2017-Spring 2019: mentored Sara M. Clifton while she was a J. L. Doob research Assistant Professor. First job: Assistant Professor at St. Olaf College, in Minnesota.

Course Development

- Math 220 Biocalc section for students in the life sciences
- Math 299 Open undergraduate seminar in Mathematical Biology
- Math 495 Models in Mathematical Biology

PROFESSIONAL SERVICE

Seminars, conferences, and workshops organized

- IBEMEA Seminar series speaker and participant. IBEMEA is a project funded by the Graduate School (part of the focal point series). The interdisciplinary group is composed of faculty and graduate students from across campus. The objective is to achieve the integration of biological, epidemiological, mathematical and engineering approaches to the management of mosquito-borne disease.
- Mathematical Biology/ Applied Mathematics seminar (co-organized with Lee DeVille), University of Illinois, Spring 2009–present.
- Undergraduate Seminar in Math and Biology, University of Illinois, Fall 2010 and Academic years 2011-2012, 2012-2013, 2013-2014.)
- Special Session on "Differential Equations and Biological Systems", (organized with Patrick Shipman, Mathematics, Colorado State University) in the fall western sectional meeting of the AMS, October 27-28 2012 in Tucson, AZ.
- Workshop on "Lattice Differential Equations" (co- organized with G. James, D. Pelinovsky, and G. Schneider) that was held in the Mathematisches Forschungsinstitut Oberwolfach, Germany, September 15-21, 2013.
- Invited Session "Pond Ecology and Epidemiology" in the Symposium on Biomathematics and Ecology, Education and Research at Illinois State University, October 9-11, 2015.
- 4th Midwest Women in Mathematics Symposium, April 2, 2016. I co-organized it with Vera Hur, Elena Fuchs, Rinat Kedem and Susan Tolman.
- Session "Eco-epidemiology in systems of crustaceans and insects" in the Symposium on Biomathematics and Ecology, Education and Research at Illinois State University, October 6-8, 2017. Co-organizer with C. Holmes.

- "Modeling to conquer: Understanding and controlling deleterious diseases using dynamical systems" session in the 2019 Society for Mathematical Biology Annual Meeting, Montreal, Canada, July 22-26, 2019. Co-organized the session with S. M. Clifton. The session had 8 speakers.
- GROW (Graduate Research Opportunities for Women) conference: principal organizer for this conference that took place in the Department of Mathematics, from October 4 until October 6, 2019. My duties involved: applying for external funds, creating and being the administrator of several online forms (application and registration) and surveys (pre- and post-conference), inviting plenary speakers and panelists, reading applications and sending out acceptance and rejection emails, reading and responding to participant emails, securing the venue of the conference (NCSA), selecting and making arrangements with the hotel, arranging for the printing of nametags, brochures, schedules, maps, working with the Business Office on reimbursement issues, writing reports to the external funding agencies. This was co-organized with Lee Deville, Vera Hur, Kay Kirkpatrick, Rinat Kedem, Richard Laugesen, Sue Tolman, and Jeremy Tyson. More than 65 undergraduates majoring in Mathematics attended the conference. The conference series (which has taken place at Northwestern University, the University of Michigan, and the University of Illinois, Urbana-Champaign) received the AMS award "Mathematics Programs that Make a Difference" in 2020.
- Panelist at AWM mini symposium, February 8, 2020. Panel title: "Becoming an independent scholar"

Refereeing and Reviewing

- Referee for *Physica D*, *Europhysics Letters*, *PLoS ONE*, *Journal of Physics A: Mathematical and Theoretical*, *Physical Biology*, *Journal of Nonlinear Mathematical Physics*, *International Journal of Physics B*, *Special Volume of the Springer Series on Wave Phenomena*, *Physics Letters A*, *Journal of Physics: Condensed Matter*, *Letters in Biomathematics*, *International Journal of Bifurcation and Chaos*, *Physica Scripta*, *New Journal of Physics*, *Communications in Nonlinear Science and Numerical Simulation*, *Physical Review E*, *Studies in Applied Mathematics*, *American Naturalist*.
- Invited Reviewer for the National Science Foundation, academic years 2008-2009, 2009-2010, 2010-2011, 2019-2020.
- Reviewer for University of Illinois Research Board proposals.
- Tenure letters: Department of Mathematical Sciences at UT Dallas.

Committee Work

- Member of the Search Committee for a Quantitative Ecologist, in the Department of Plant Biology at the School of Integrative Biology, Fall 2012.
- New Graduate Student Orientation Panelist, Summers of 2011, 2012, 2015, 2017, 2018, 2019.
- Member of the Postdoctoral Search Committee, 2011-2012.
- Member of the Mathematics Chair Search Committee, Spring 2011 and Spring 2018.
- Member of Math Study Abroad Committee 2010-2011, 2012-2013 and 2013-2014.

- Member of Math Target of Opportunity Committee 2010-2012.
- Invited participant to the Board of Trustees meeting in Chicago, July 2015.
- Member of the Honors Committee, Spring 2018.
- Member of Comprehensive Exam Committee: MATH 550, 2009-2010, 2012-2013, 2013-2014, 2014-2015, 2016-2017, 2017-2018, 2018-2019.
- Member of Math Undergraduate Affairs Committee (UAC) 2008-2010 and 2014-2015.
- Member of the Math Teaching Awards Committee 2013-2014.
- Member of the Math Colloquium Committee 2014-2015.
- Member of the Math Executive Committee 2015-2017.
- Member of the LAS Awards Committee 2016-2018.
- Member of Capricious Grading Committee 2018-2020.
- AWM Advisor 2017-2020.
- Grad Recruit Application Screening Committee 2019-2020.
- Member of Preliminary Examination Committees for: Zaid Ahsan (Mechanical Science and Engineering) on 05/05/2020, Daniel Inafuku (Physics) on 05/01/2020, Stuti Shrivastava (Plant Biology) on 03/12/2018, Lan Wang on 05/05/2017, Michael Livesay on 05/05/2017, Stacey Butler on 10/12/2016, Jooyeon Chung on 2/11/2016, Iftikhar Ahmed on 7/2/2015, Tayyab Nawaz on 11/06/2014, Meghan Galiardi on 10/30/2014, Zachary Bergeron (Animal Biology, School of Integrative Biology) on 04/29/2014, Jordan Hasler on 4/18/2014, Stephen Berning on 10/08/2013, Ki Yeun Kim on 09/26/2013, Nathan Orlow on 04/25/2013, Michelle Duennes (Entomology, School of Integrative Biology) on 05/14/2013, Vishal Chikkerur (Aerospace Engineering) on 06/05/2012, Kelly Funk on 04/11/2011, Chris Bonnell on 04/04/2011, Andrew Vlastic on 04/29/2010 and 11/05/2010, Dashiell Fryer on 01/29/2010, Marc Harper on 03/05/09.
- Member of Thesis Defense Committees for: Lan Wang on March 30, 2020, Michael Livesay on 03/05/2019, Tara Stewart (Animal Biology, SIB) on 12/12/2018, Stacey Butler on 12/11/2018, Argen West on 04/23/2018, Jooyeon Chung on 04/24/2018, Vishal Chikkerur (PhD, Aerospace) on 07/05/2017, Tayyab Nawaz (PhD) on 02/07/2017, Lin Cong (PhD) on 03/27/2017, Hoong Chieh Yeong (PhD, Aerospace) on 03/13/2017, Ki Yeun Kim (PhD) on 4/8/2016, Jordan Hasler (PhD) on 3/31/2016, Meghan Galiardi (PhD) on 3/17/2016, Michelle Duennes (PhD, Entomology) on 11/4/2015, Stephen Berning (PhD) on 6/9/2015, Zachary Bergeron (Master's, Animal Biology) on 4/10/2015, Kelly Yancey (Ph.D.) on 04/18/2013, Christofer Bonnell (Ph.D.) on 03/12/2013, Zhi Zheng (Ph.D.) on 06/08/12, Andrew Vlastic (Ph.D.) on 04/18/12, Dashiell Fryer (Ph.D.) on 06/13/11, Juraj Cech 04/18/11 (Master's in Entomology, School of Integrative Biology), Marc Harper (Ph.D.) on 07/31/09.
- Mentor of Balamurugan Pandiyan (Lecturer), Department of Mathematics at University of Wisconsin-Whitewater during the 2019 Society for Mathematical Biology annual meeting. He won a poster award at that meeting.
- Moderator of "Panel discussion on careers for math students in the life sciences and medicine", Friday, October 18, 2019.

- Fall 2019 member of the search committee for a Business/Administrative Associate Position in the Department of Mathematics.

OUTREACH

- GEMS at the University of Illinois, March 2, 2019.
- Girls Do Science camp at the Orpheum Children’s Museum, September 23, 2017.
- Girls Do Science Summer Camp Faculty Mentor, June 11-12, 2012.
- I-Bio Program Faculty Mentor, Summer 2012.

PUBLICATIONS

37. Invited Book Chapter: "Nonlinearity and Biology" in "Emerging Frontiers in Nonlinear Science", Springer Nature Switzerland AG, to be published in 2020. Sole author, 24 pages.
36. Patch centrality affects metapopulation dynamics in small freshwater ponds, Christopher J. Holmes, Zoi Rapti, Jelena H. Pantel, Kimberly L. Schulz, and Carla E. Cáceres, accepted in *Theoretical Ecology*.
35. Lying in wait: modeling the control of bacterial infections via antibiotic-induced proviruses, Sara M. Clifton, Ted Kim, Jayadevi H. Chandrashekar, George O’Toole, Zoi Rapti, Rachel J. Whitaker, *mSystems* 4 (5) e00221-19 (2019).
34. Indirect effects in a planktonic disease system, Z. Rapti, T. E. Stewart Merrill, B. Mueller-Brennan, J. H. Kavouras, C. E. Cáceres, *Theoretical Population Biology*, article in press (1 BIOMATH undergraduate student is co-author).
33. Applications of a class of Herglotz operator pencils A.K. Barreiro, J.C. Bronski, and Z. Rapti, *SIAM Journal on Mathematical Analysis* 51 (2019), 256-275.
32. Stochastic stability and dynamics of a two-dimensional structurally nonlinear airfoil in turbulent flow, P. Singh, H. C. Yeong, H. Zhang, Z. Rapti and N.S. Namachchivaya, *Meccanica* 51, 23665-2688 (2016).
31. Effects of intrinsic and extrinsic host mortality on disease spread, Z. Rapti and C. E. Cáceres, *Bulletin of Mathematical Biology* 78, 235–253 (2016).
30. The relationship between gene network structure and expression variation among individuals and species, Karen E. Sears, Jennifer A. Maier, Marcelo Rivas-Astroza, Rachel Poe, Sheng Zhong, Kari Kosog, Jonathan D. Marcot, Richard R. Behringer, Chris J. Cretekos, John J. Rasweiler IV and Zoi Rapti, *PLoS Genetics* 11 (8), e1005398 (2015), (2 BIOMATH undergraduate students are co-authors).
29. Effect of larval competition on extrinsic incubation period and vectorial capacity of *Aedes albopictus* for Dengue virus, Jeffrey J Bara, Zoi Rapti, Carla Cáceres, and Ephantus J. Muturi, *PLoS One* 10 (5), e0126703 (2015).
28. Non-holonomic constraints and their impact on discretizations of Klein-Gordon lattice dynamical models, P. G. Kevrekidis, V. Putkaradze, and Z. Rapti, *Dynamical Systems, Differential Equations and Applications*, AIMS Proceedings, 696–704 (2015).

27. Complex Daphnia interactions with parasites and competitors, C. E. Caceres, G. Davis, S. Duple, S. Hall, A. Koss, P. Lee, Z. Rapti, *Mathematical Biosciences* 258, 148–161 (2014), (4 BIOMATH undergraduate students are co-authors).
26. Defining the colour pattern phenotype in bumble bees, Z. Rapti, M. Duennes, and S. A. Cameron, *Biological Journal of the Linnean Society* 113, 384–404 (2014).
25. Optimal nudging in particle filters, N. Lingala, N. Perkowski, H.C. Yeong, N. Sri Namachchivaya, *Probabilistic Engineering Mechanics* 37, 160–169 (2014).
24. Approximate Intrinsic Localized mode dynamics in DNA models, V. Putkaradze and Z. Rapti, *The 2013 International Symposium on Nonlinear Theory and its Applications*, 4 pages.
23. Multibreather stability in discrete Klein-Gordon equations: Beyond nearest neighbor interactions, *Phys. Lett. A.* 377, 1543–1553 (2013).
22. Data assimilation in the detection of vortices using Lagrangian tracers, A. Barreiro, V. Chikkerur, Y. Jiang, H.C Yeong, N. Sri Namachchivaya and Z. Rapti, *7th ENOC Proceedings, Rome, Italy*, 24–29, (2011).
21. Stability of a stochastic two-dimensional non-Hamiltonian system, Lee DeVille and N. Sri Namachchivaya and Z. Rapti, *SIAM Journal on Applied Mathematics* 71, 1458–1475 (2011).
20. The transfer integral operator method in the study of DNA unzipping and bubble formation, Z. Rapti, K. Ø. Rasmussen and A. R. Bishop, *Journal of Nonlinear Mathematical Physics* 18, 381–396 (2011).
19. Counting defect modes in periodic eigenvalue problems, J. C. Bronski and Z. Rapti, *SIAM Journal on Mathematical Analysis* 43, 803–827 (2011).
18. Computing DNA duplex instability profiles efficiently with a two-state model: trends of promoters and binding sites, M. R. Kantorovitz, Z. Rapti, V. Gelev, and A. Usheva, *BMC Bioinformatics* 11, 604 (2010).
17. Stationary solutions for a modified Peyrard-Bishop DNA model with up to third-neighbor interactions, Z. Rapti, *Eur. Phys. J. E* 32, 209–216 (2010).
16. Soliton dynamics in linearly coupled discrete nonlinear Schrödinger equations, A. Trombettoni, H.E. Nistazakis, Z. Rapti, D.J. Frantzeskakis, and P.G. Kevrekidis, *Mathematics and Computers in Simulation* 80, 814–824 (2009).
15. Rabi switch of condensate wave functions in a multicomponent Bose gas, H. E. Nistazakis, Z. Rapti, D. J. Frantzeskakis, P. G. Kevrekidis, P. Sodano, and A. Trombettoni, *Phys. Rev. A* 78, 023635 (2008).
14. Profiling the thermodynamic softness of adenoviral promoters, Chu H. Choi, Z. Rapti, Boian Alexandrov, Evelyn J. Park, Jae Suk Park, Vladimir Gelev, Nobuo Horikoshi, Augusto Smerzi, Kim Ø. Rasmussen, Alan R. Bishop and Anny Usheva, *Biophys. J.* 95, 597–608 (2008).
13. Solitary waves under the competition of linear and nonlinear periodic potentials, Z. Rapti, P.G. Kevrekidis, V.V. Konotop, and C.K.R.T. Jones, *J. Phys. A.*, **40**, 14151–14163 (2007).
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