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CV of Margaret Beck

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Education

Ph.D., Mathematics
Boston University ..... May 2006
Thesis title: "Topics in stability theory for partial differential equations."
Advisors: Tasso J. Kaper and C. Eugene Wayne.

B.A., Mathematics
Colorado College ..... May 2000

Employment

Faculty Positions

- Department of Mathematics and Statistics, Boston University, Boston, MA, USA
  Professor ..... March 2021 - Present
  Associate Professor (with tenure) ..... April 2015 - February 2021
  Assistant Professor ..... September 2009 - April 2015
- Department of Mathematics, Heriot-Watt University, Edinburgh, Scotland, UK
  Lecturer ..... September 2011 - December 2013

Postdoctoral Positions

- NSF Mathematical Sciences Postdoctoral Research Fellowship
  Division of Applied Mathematics, Brown University, Providence, RI, USA ..... August 2008 - July 2009
  Department of Mathematics, University of Surrey, Guildford, UK ..... Sept - Dec 2006, June 2007 - Aug 2008
- Mathematical Sciences Research Institute (MSRI), Berkeley, CA, USA
  During the semester-long program "Dynamical Systems" ..... January - May 2007

Awards, Fellowships, and Grants

Awards

- J. D. Crawford Prize
  Given every two years by the SIAM (Society for Industrial and Applied Mathematics) Activity Group on Dynamical Systems for "recent outstanding work on a topic in nonlinear science" including "dynamical systems theory and its applications." 2019

Fellowships

- American Mathematical Society (AMS) Birman Fellowship ..... September 2018 - August 2019
- Sloan Research Fellowship ..... September 2012 - August 2014
- NSF Mathematical Sciences Postdoctoral Research Fellowship ..... September 2006 - August 2009

NSF Division of Mathematical Sciences "Standard Grants"

- PI, award number DMS-2205434 ..... September 2022 - August 2025
- PI, award number DMS-1907923 ..... August 2019 - July 2022
- PI, award number DMS-1411460 ..... August 2014 - July 2018
- PI, award number DMS-1007450 ..... July 2010 - July 2013

NSF Conference Grants

- Boston University - Keio University Workshops
  co-PI, award number DMS-1724137 ..... June 2017 - May 2020
- Analysis of Partial Differential Equations using Dynamical Systems Techniques
  PI, award number DMS-1600061 ..... June 2016

Outreach Grants

- GirlsGetMath@BU additional funds from Math for America-Boston
  co-PI. For summer programming in 2022 and 2023 ..... August 2020
- GirlsGetMath@BU Matching funds
  co-PI. Funds to match the above seed funding were obtained from each of the Boston University Department of Mathematics and Statistics and the Boston University Office of the Provost via BU ARROWS: Advance, Recruit, Retain, and Organize Women in Science ..... October 2019
- Seed funding for GirlsGetMath@BU ..... October 2019
  PI. This will enable the creation of a week-long summer outreach program at BU for high schoolers to begin in Summer 2020, based on an existing program at the Institute for Computational and Experimental Research in Mathematics (ICERM) at Brown University. The funding is awarded by ICERM.

Research Appointments

Research Professor
Mathematical Sciences Research Institute (MSRI), Berkeley, CA
Invited participant in the program "Hamiltonian Systems" ..... August - December 2018

Research Member
Mathematical Sciences Research Institute (MSRI), Berkeley, CA
Invited participant in the program "New Challenges in PDE: Deterministic Dynamics and Randomness in High and Infinite Dimensional Systems" ..... August - September 2015

Long-Term Visitor
Institute for Mathematics and Its Applications (IMA), Minneapolis, MN
Invited participant in the program "Infinite Dimensional and Stochastic Dynamical Systems and Their Applications" ..... September - December 2012

Visitor
Institut Mittag-Leffler, Sweden
Invited participant in the semester-long program "Dynamics and PDEs" ..... March and May 2010

Preprints and Publications - Peer Reviewed

1) "Validated spectral stability via conjugate points," with J. Jaquette. *SIAM J. Appl. Dyn. Syst.*, 21, 366-404 (2022).

2) "A dynamical approach to semilinear elliptic equations," with G. Cox, C. Jones, Y. Latushkin, and A. Sukhtayev. *Ann. Inst. H. Poincaré Anal. Non Linéaire*, 38, 421-450 (2021).

3) "Exponential dichotomies for elliptic PDE on radial domains," with G. Cox, C. Jones, Y. Latushkin, and A. Sukhtayev. "Mathematics of Wave Phenomena," W. Dörfler et. al. (eds.), 49-69, Springer (2020).

4) "Selection of quasi-stationary states in the stochastically forced Navier-Stokes equation on the torus," with E. Cooper, G. Lord, and K. Spiliopoulos. *J. Nonlinear Sci.*, 30, 1677-1702 (2020).

5) "Spectral stability and spatial dynamics in partial differential equations." *Notices of the AMS*, 67, no 4, 500-507 (2020).

6) "Rigorous justification of Taylor dispersion via center manifolds and hypocoercivity," with O. Chaudhary and C. E. Wayne. *Arch. Ration. Mech. Anal.*, 235, 1105-1149 (2020).

7) "Localized radial roll patterns in higher space dimensions," with J. J. Bramburger, D. Altschuler, C. I. Avery, T. Sangsawang, P. Carter, and B. Sandstede. *SIAM J. Appl. Dyn. Syst.*, 18, no 3, 1420-1453 (2019).

8) "Selection of quasi-stationary states in the Navier-Stokes equation on the torus," with E. Cooper and K. Spiliopoulos. *Nonlinearity*, 32, 209-237 (2019).

9) "Grassmannian flows and applications to nonlinear partial differential equations," with A. Doikou, S.J.A. Malham, and I. Stylianidis. In "Computation and Combinatorics in Dynamics, Stochastics and Control," Proceedings of the Abel Symposium, Rosendal, Norway, August 2016, Springer (2018).

10) "Partial differential systems with nonlocal nonlinearities: Generation and solutions," with A. Doikou, S.J.A. Malham, and I. Stylianidis. *Phil. Trans. R. Soc. A*, 376, no 2117 (2018).

11) "Instability of pulses in gradient reaction-diffusion systems: A symplectic approach," with G. Cox, C. Jones, Y. Latushkin, K. McQuighan, and A. Sukhtayev. *Phil. Trans. R. Soc. A*, 376, no 2117 (2018).

12) "Isolas versus snaking of localized rolls," with T. Aougab, P. Carter, S. Desai, B. Sandstede, M. Stadt, and A. Wheeler. *J Dyn Diff Equat*, 31, 1199-1222 (2019 - appeared online 2017).

13) "Stability of nonlinear waves: pointwise estimates." *Discrete and Continuous Dynamical Systems Series S*, 10, no 2, 191-211 (2017). Part of a special issue associated with the 2015 Bremen winter school and symposium entitled "Diffusion on fractals and non-linear dynamics."

14) "Analysis of enhanced diffusion in Taylor dispersion via a model problem," with O. Chaudhary and C. E. Wayne. "Hamiltonian PDEs and Applications," *Fields Institute Communications*, 75, 31-71 (2015).

15) "Computing the Maslov Index for large systems," with S. Malham. *Proceedings of the AMS*, 143, no. 5, 2159-2173 (2015).

16) "Superadiabaticity in Reaction Waves as a Mechanism for Energy Concentration," with S. G. Mahajan, J. T. Abrahamson, S. Birkhimer, E. Friedman, Q. H. Wang, and M. S. Strano. *Energy and Environmental Science* 7, 3391-3402 (2014).

17) "Nonlinear stability of source defects in the complex Ginzburg-Landau equation," with T. Nguyen, B. Sandstede and K. Zumbrun. *Nonlinearity* 27, 739-786 (2014).

18) "Metastability and rapid convergence to quasi-stationary bar states for the 2D Navier-Stokes Equations," with C. E. Wayne. *Proc. Roy. Society. Ed.*, 143, 905-927 (2013).

19) "Toward nonlinear stability of sources via a modified Burgers equation," with T. Nguyen , B. Sandstede and K. Zumbrun. *Phys. D* 241, 382-392 (2012).

20) "Using global invariant manifolds to understand metastability in Burgers equation with small viscosity," with C. E. Wayne. *SIAM Rev.* 53, no. 1, 129-153 (2011).

21) "Stability of traveling wave solutions for coupled surface and grain boundary motion," with Z. Pan and B. Wetton. *Phys. D* 239, 1730-1740 (2010).

22) "Nonlinear stability of time-periodic viscous shocks," with B. Sandstede and K. Zumbrun. *Arch. Ration. Mech. Anal.* 196, 1011-1076 (2010).

23) "Nonlinear stability of semi-discrete shocks for two sided schemes," with H. J. Hupkes, B. Sandstede, and K. Zumbrun. Submitted. *SIAM J. Math. Anal.* 42, no. 2, 857-903 (2010).

24) "Using global invariant manifolds to understand metastability in Burgers equation with small viscosity," with C. E. Wayne. *SIAM J. Appl. Dyn. Syst.* 8, no. 3, 1043-1065 (2009).

25) "Snakes, ladders, and isolas of localised patterns," with J. Knobloch, D. Lloyd, B. Sandstede and T. Wagenknecht. *SIAM J. Math. Anal.* 41, 936-972 (2009).

26) "Nonlinear convective stability of traveling fronts near Turing and Hopf instabilities," with A. Ghazaryan and B. Sandstede. *J. Differential Equations* 246, 4371-4390 (2009).

27) "Electrical waves in a one-dimensional model of cardiac tissue," with C.K.R.T. Jones, D. Schaeffer and M. Wechselberger. *SIAM J. Appl. Dyn. Syst.* 7, no. 4, 1558-1581 (2008).

28) "Invariant manifolds and the stability of traveling waves in scalar viscous conservation laws," with C. E. Wayne. *J. Differential Equations*, 244, 87-116 (2008).

29) "A geometric construction of traveling waves in a bioremediation model," with A. Doelman and T. J. Kaper. *J. Nonlinear Sci.*, 16, no. 4, 329-349 (2006).

30) "A geometric theory of chaotic phase synchronization," with K. Josić. *Chaos*, 13(1), 247-258 (2003).

Preprints and Publications - Not Peer Reviewed

1) Review of the book "Nonlinear PDEs: A Dynamical Systems Approach," by Guido Schneider and Hannes Uecker, *DSWeb* (2018).

2) Review of the book "Multiple Time Scale Dynamics" by Christian Kuehn, *SIAM Review*, Vol. 59, Issue 4 (2017).

3) "Analyzing multiple timescales in two-dimensional fluids using dynamical systems," with C. Eugene Wayne, *SIAM News* (2017).

4) Entry on "Burgers equation" in the *Encyclopedia of Applied and Computational Mathematics* (B. Engquist, ed.), Springer (2015).

5) "Rapid convergence to quasi-stationary states of the 2D Navier-Stokes equation," *European Mathematical Society* 8, no. 1, 3585-3588 (2012). Published as part of the Oberwolfach report on the workshop "Dynamics of Patterns."

6) "Coherent structures in evolutionary equations," *DS Web*, October (2010). Short online article on the conference held at the Lorentz Center in the Netherlands.

Presentations and Conference Participation

Invited plenary speaker

- SIAM Conference on Applied Dynamical Systems
  Portland, OR. ..... Upcoming in May 2023
- SIAM Conference on Nonlinear Waves and Coherent Structures
  Bremen, Germany ..... Upcoming in August 2022
- Equadiff
  Leiden, the Netherlands ..... July 2019
- Public Lecture, Haus der Wissenschaft (House of Science)
  Bremen, Germany. Part of the Winter School and Symposium on
  "Diffusion on Fractals and Nonlinear Dynamics" ..... March 2015
- First Central Region Conference on Numerical Analysis and Dynamical Systems
  University of Kansas, Lawrence, KA ..... May 2013
- Kavli German-American Frontiers of Science Symposium
  US National Academy of Sciences, Irvine, CA ..... April 2011

Invited Minicourse Instructor

- Bremen Winter School and Symposium on "Diffusion on Fractals and Nonlinear Dynamics"
  Lectures on "Stability of nonlinear waves," University of Bremen, Germany ..... March 2015
- SIAM conference on Nonlinear Waves and Coherent Structures, Workshop for PhD Students
  Lectures on "Linear stability theory," University of Washington, Seattle, WA ..... June 2012

Conference and Workshop Organization

- "Dynamics of Waves and Patterns"
  Co-organizer; hybrid format at Mathematisches Forschungsinstitut Oberwolfach, Germany ..... August 2021
- SIAM Conference on Applications of Dynamical Systems
  Co-chair of organizing committee for thousand-person virtual conference ..... May 2021
- One World Dynamics Seminar
  On organizing committee for monthly virtual seminar ..... August 2020 - February 2021
- Boston University - Keio University (Japan) Workshop on Dynamical Systems and Applications
  Co-organizer; held at Boston University, Boston, MA ..... June 2018
- Analysis of Partial Differential Equations using Dynamical Systems Techniques
  Co-organizer; held at Boston University, Boston, MA ..... June 2016
- SQuaREs (Structured Quartet Research Ensembles)
  With Graham Cox, Christopher K. R. T. Jones, and Yuri Latushkin; held at American Institute of Mathematics (AIM), Palo Alto, CA; Three week-long research group meetings ..... August, 2014, June, 2015, and June 2016
- Boston University - Keio University (Japan) Workshop on Dynamical Systems and Applications
  Co-organizer; held at Boston University, Boston, MA ..... September 2014
- SIAM conference on Nonlinear Waves and Coherent Structures
  On organizing committee; held at the University of Cambridge, UK ..... August 2014
- "From Topological to Stochastic Techniques in Dynamical Systems"
  Co-organizer; held at the Lorentz Center, Leiden, the Netherlands ..... June 2014
- SIAM conference on Nonlinear Waves and Coherent Structures
  On organizing committee; held at the University of Washington, Seattle, WA ..... June 2012
- "Dynamics in Infinite-dimensions: Ergodic Theory and PDEs"
  Co-organizer; held at the International Centre for Mathematical Sciences (ICMS), Edinburgh, UK ... May 2012

Invited panelist

- Panel at the conference "Connections for Women: Hamiltonian Systems"
  Mathematical Sciences Research Institute (MSRI), Berkeley, CA ..... August 2018
- "Work-life balance" panel at the conference "Connections for Women: Dispersive and Stochastic PDE"
  Mathematical Sciences Research Institute (MSRI), Berkeley, CA ..... August 2015
- "Past and Future Directions in Applied Dynamical Systems" panel at the conference "Geometric Methods for Infinite-Dimensional Dynamical Systems"
  Brown University, Providence, RI ..... November 2011
- "Women and Mathematics" panel at the SIAM conference on Dynamical Systems and PDE
  Barcelona, Spain ..... May 2010

Invited workshop participation

- "Computer assisted proofs for stability analysis of nonlinear waves"
  American Institute of Mathematics, California ..... upcoming in June 2023
- "Drexel Waves Workshop"
  Drexel University, Philadelphia, PA ..... upcoming in March 2023
- "Coherent Structures: Current Developments and Future Challenges" (participated online)
  Lorentz Center, Leiden, the Netherlands ..... July 2022
- "Connections in Infinite Dimensional Dynamics" (virtual)
  Banff International Research Station (BIRS), Canada ..... May 2020
- "Formation of small scales in nonlinear PDEs"
  Center for Scientific Computation and Mathematical Modeling, University of Maryland ..... September 2019
- "Hamiltonian systems, from topology to applications through analysis"
  Mathematical Sciences Research Institute (MSRI), Berkeley, CA ..... October 2018
- "Connections for Women: Dispersive and Stochastic PDE"
  Mathematical Sciences Research Institute (MSRI), Berkeley, CA ..... August 2015
- "Rigorous computation in infinite-dimensional dynamical systems"
  American Institute of Mathematics (AIM), Palo Alto, CA ..... August 2013
- "Dynamics of Patterns"
  Mathematisches Forschungsinstitut Oberwolfach, Germany ..... December 2012
- "Dynamical Systems in Studies of Partial Differential Equations"
  Institute for Mathematics and its Applications (IMA), Minneapolis, MN ..... September 2012
- "Localized Multi-Dimensional Patterns in Dissipative Systems: Theory, Modeling, and Experiments"
  Banff International Research Station (BIRS), Canada ..... July 2011
- "Coherent structures in evolutionary equations"
  Lorentz Center, Leiden, the Netherlands ..... July 2010

Minisymposium co-organizer

- SIAM Nonlinear Waves and Coherent Structures, Bremen, Germany ..... upcoming in August 2022
- SIAM Annual Meeting, Portland, OR ..... July 2018
- Equadiff 2015, Lyon 1 University, France ..... July 2015
- SIAM Nonlinear Waves and Coherent Structures, University of Cambridge, UK ..... August 2014
- Equadiff 2011, Loughborough University, UK ..... August 2011
- SIAM Applications of Dynamical Systems, Snowbird, UT ..... May 2011
- SIAM Emerging Topics in Dynamical Systems and PDE, Barcelona, Spain ..... May 2010
- SIAM Nonlinear Waves and Coherent Structures, Università di Roma, Italy ..... July 2008
- Equadiff 2007, Vienna University of Technology, Austria ..... August 2007
- SIAM Applications of Dynamical Systems, Snowbird, UT ..... May 2007

Invited speaker (seminars and conference minisymposia in last ten years)

- University of Bremen Applied Analysis Seminar (virtual) ..... April 2021
- University of Denver AWM Chapter Seminar (virtual) ..... January 2021
- University of Washington Applied PDE Seminar (virtual) ..... October 2020
- Brandeis-Harvard-MIT-Northeastern Mathematics Colloquium (virtual) ..... September 2020
- One World PDE Seminar (virtual) ..... May 2020

- Brigham Young University, Departmental Colloquium ..... March 2020
- University of Minnesota, Dynamics Seminar ..... February 2020
- College of the Holy Cross, Pi Mu Epsilon Colloquium ..... May 2019
- University of San Francisco, Mathematics Colloquium ..... September 2018
- SIAM Annual Meeting, Minisymposium, Portland, OR ..... July 2018
- WPI, Departmental Colloquium ..... March 2018
- Institute for Computational and Experimental Research in Mathematics (ICERM) ..... April 2017
- Brigham Young University, PDE Seminar ..... October 2016
- UMass Lowell, Mathematics Colloquium ..... December 2014
- New Jersey Institute of Technology, Applied Mathematics Colloquium ..... November 2014
- Tufts University, Mathematics Colloquium and Dynamics Seminar ..... November 2014
- Boston University, PROMYS Guest Lecturer ..... July 2014
- AIMS Conference on Dynamical Systems and Differential Equations, Minisymposium, Madrid ..... July 2014
- Ohio State University, Mathematics Colloquium ..... March 2014
- University of Stiling, Scotland ..... November 2013
- Universität Augsburg Mathematisches Kolloquium, Germany ..... July 2013
- RWTH Aachen University, Germany ..... June 2013
- Vrije Universiteit, Amsterdam ..... April 2013
- University of Leiden, the Netherlands ..... April 2013
- Massachusetts Institute of Technology, (MIT) PDE/Analysis Seminar ..... March 2013
- University of Minnesota, Dynamics and Patterns Seminar ..... November 2012
- University of Cambridge, Geometric Analysis and PDE Seminar ..... May 2012
- University of Bath, Applied Mathematics Seminar ..... April 2012
- Pontificia Universidad Católica and Universidad de Chile, Dynamical Systems Seminar ..... March 2012
- University of Edinburgh, Analysis Seminar ..... February 2012
- University of Warwick, Applied Mathematics Seminar ..... February 2012
- University of Strathclyde, Mathematics Colloquium ..... November 2011
- University of Edinburgh, Applied and Computational Mathematics Seminar ..... October 2011
- Equadiff 2011, Minisymposium, Loughborough University ..... August 2011
- SIAM Applications of Dynamical Systems, Minisymposium, Snowbird, UT ..... May 2011
- UCLA, Participating Analysis Seminar ..... April 2011

Professional Service

Journal Editorial Boards

- Associate Editor, SIAM Journal on Mathematical Analysis (SIMA) ..... January 2020 - December 2022
- Associate Editor, SIAM Journal on Applied Dynamical Systems (SIADS) ..... January 2018 - December 2020
- Series Editor, Frontiers in Applied Dynamical Systems (FIADS) ..... June 2015 - Present

Outreach

- GirlsGetMath@BU ..... August 2022
  Co-organizer of week-long summer program for high schoolers, modeled after GirlsGetMath at ICERM.

- WISE@Warren Seminar ..... November 2021
  Gave an hour-long seminar as part of the Boston University Women In Science and Engineering (WISE) Residence Program, a program for first-year female STEM majors who live together in the Warren Towers dorm. The seminar covers topics such as implicit bias, stereotype threat, microagressions, imposter syndrome, and intersectionality.
- Kilachand Honors College Co-curricular ..... October 2021
  Gave an hour-long seminar to students in the Honors College on Social Factors and Underrepresentation, covering topics such as implicit bias, stereotype threat, microagressions, imposter syndrome, and intersectionality.
- Panel member on the Outreach Panel and the BU GWISE Day of Diversity in STEM ..... April 2021
- WISE@Warren Seminar ..... November 2020
  Gave an hour-long seminar as part of the Boston University Women In Science and Engineering (WISE) Residence Program, a program for first-year female STEM majors who live together in the Warren Towers dorm. The seminar covers topics such as implicit bias, imposter syndrome, and stigma.
- GirlsGetMath@BU (postponed to 2022 due to covid) ..... August 2020
  Co-organizer of week-long summer program for high schoolers, modeled after GirlsGetMath at ICERM.
- EDGE (Enhancing Diversity in Graduate Education) Colloquium Speaker ..... June 2020
  Program to strengthen the ability of women and minority students to successfully complete graduate programs in the mathematical sciences; held at Brown University in 2020.
- WISE@Warren Seminar ..... November 2019
  Similar to the above mentioned seminar in November 2020.
- Train the Trainer program for GirlsGetMath ..... Summer 2019
  GirlsGetMath is a week-long summer program for high schoolers, which takes place at ICERM. The train-the-trainer program was for faculty interested in developing a similar program at their home institutions.
- Mentor for the Association for Women in Mathematics (AWM) Mentor Network ..... March 2019 - Present
  Matched with mathematicians from a variety of levels, including recent PhDs and graduate students, who are seeking mentorship. Currently mentoring one postdoc.
- Faculty advisor for the Boston University Directed Reading Program, organized by graduate students Sachi Hashimoto, Ricky Magner, and Jessica Nadalin. This program matches interested undergraduates with graduate student mentors, who lead them in a reading course on a topic of mutual interest. Aside from introducing undergraduates to new mathematics, a key goal of this program is to build community amongst our students, undergraduate and graduate. ..... Fall 2018 - Present
- Co-organizer, with Jennifer Balakrishnan, of events for women in the department, such as departmental teas and other off-campus events ..... Fall 2016 - Present
- WISE@Warren Seminar ..... November 2016
  Similar to the above mentioned seminar in November 2020.
- PROMYS Guest Lecturer ..... July 2014
  Gave an hour-long talk about my research to high school students participating in the six-week summer program PROMYS (Program in Mathematics for Young Scientists) at Boston University.

Grant Refereeing

- Member of US National Science Foundation (NSF) grant review panel 2011, 2013, 2017, 2020, 2021
- Reviewed proposal for FONDECYT, the Chilean National Science Foundation 2013
- Proposal review for the International Center for Mathematics and Computer Science in Toulouse, France . 2020

Elected positions within SIAM

- Program Officer, SIAM Activity Group on Dynamical Systems ..... Jan 2020 - Dec 2021
- Vice Chair, SIAM Activity Group on Nonlinear Waves and Coherent Structures ..... Jan 2013 - Dec 2014

Journal Referee

- Memoirs of the AMS, SIAM Journal of Mathematical Analysis, Journal of Applied Mathematics and Physics (ZAMP) 2020

- Journal of Nonlinear Science 2019
- Journal of Nonlinear Science, Physica D, SIAM Journal of Mathematical Analysis 2018
- Journal of Nonlinear Science, SIAM Journal of Applied Dynamical Systems 2016
- Physica D, SIAM Journal of Applied Dynamical Systems, SIAM Journal of Mathematical Analysis 2015
- Advances in Mathematics, Archive for Rational Mechanics and Analysis (2), Discrete and Continuous Dynamical Systems A, Discrete and Continuous Dynamical Systems B, Physica D 2014
- Annales de l'Institut Henri Poincaré C Analyse Non Linéaire, SIAM Journal of Mathematical Analysis ... 2013
- Dynamics of Partial Differential Equations, Electronic Journal of Differential Equations, Journal of Dynamics and Differential Equations, Memoirs of the AMS, Proceedings of the AMS, SIAM Journal of Applied Dynamical Systems, SIAM Journal of Mathematical Analysis 2012
- Applied Math Letters, Archive for Rational Mechanics and Analysis, Journal of Nonlinear Science, Physica D, Quarterly of Applied Mathematics, SIAM Journal of Applied Dynamical Systems (2) 2011
- Journal of Mathematical Analysis and Applications, Journal of Physics A, Nonlinearity, Physica D, SIAM Journal of Mathematical Analysis (2) 2010
- Physica D, SIAM Journal of Applied Dynamical Systems, SIAM Journal of Applied Mathematics, SIAM Undergraduate Research Online 2009
- Discrete and Continuous Dynamical Systems B 2007
- Journal of Mathematical Analysis and Applications, Mathematics and Computers in Simulation, Nonlinearity 2006
- Journal of Mathematical Analysis and Applications 2005

Major Service roles within Boston University

- CAS Diversity and Inclusion Action Team (DIAT) ..... Fall 2022 - Summer 2024
- Director of Undergraduate Mathematics Instruction. Responsible for the scheduling of undergraduate courses and for the assignment and management of teaching fellows .....September 2019 - June 2022
- CAS Society of Fellows Steering Committee. Member of the committee to help launch the new CAS Society of Fellows, an interdisciplinary Postdoctoral Program within CAS. Roles include helping to develop the programming and mentorship frameworks for the Society and recruiting Faculty Fellows. .....Fall 2021
- CAS Strategic Planning Steering Committee. Member of committee to create CAS sstrategic plan to complement the BU-wide strategic plan and serve as a roadmap for the College's growth and development. Appointed by the Dean of the College of Arts and Sciences. ..... Spring 2021
- Chair of MCS Divisional Taskforce. Responsible for chairing and writing the report of the committee to "look towards a vision for the 'next generation' of the Mathematical and Computational Sciences at Boston University". Appointed by the Dean of the College of Arts and Sciences. .....Spring 2021

Other Service within the Department of Mathematics and Statistics at Boston University

- Founding member of Departmental DE&I committee 2021-Present
- Undergraduate advisor for mathematics majors .....Spring 2015 - Present
- Member of departmental Webpage Committee 2019-Present
- On Merit Committee 2022
- Oral qualifying exam committee member for PhD student Ben Hosek 2021
- On thesis committee for graduating PhD students Jessica Nadalin and Roland Welter 2021
- On Merit Committee 2021
- On thesis committee for graduating PhD students Xiaoxuan Wu and Ying Zhang 2020
- Ran reading course for two graduate students 2020
- Chair of the Merit Committee 2020

- Co-ran four Summer Orientation Advising Sessions for incoming students 2019
- Member of Department Chair Delegate Committee 2019
- Member, Dynamical Systems tenure-track hiring committee 2019
- Oral qualifying exam committee member for 3 PhD students: Ying Zhang, Doris Wu, and Jessica Nadalin 2018
- Chair of thesis committee for graduating PhD student Eric Chang 2018
- Graduate admissions committee member: helped evaluate applications to math PhD program 2018
- Merit Committee Member 2018
- Chair, Dynamical Systems tenure-track hiring committee 2018
- Graduate committee member: helped revise structure of qualifying exams for math PhD program 2017
- On thesis committee for graduating PhD student Patrick Cummings 2017
- Graduate admissions committee member: helped evaluate applications to math PhD program 2017
- Wrote "Undergraduate Advising" pages for the departmental webpage 2017
- Member of Department Chair Delegate Committee 2017
- Member of Probability and Stochastic Processes tenure-track hiring committee 2017
- Co-organizer of Dynamics Seminar 2013-2017
- Member of Lecturer Promotion Committee for Dr. Rajan Panth 2016
- Helped grade written qualifying exam in analysis for MA and PhD students 2016
- Member of hiring committee for Associate and Full Professor in Statistics 2016
- Co-organizer of Mathematics Colloquium ..... 2013 - 2016
- Member of GAANN proposal committee 2015
- On thesis committee for graduating PhD student Dara Gold 2015
- Member of Geometry tenure-track hiring committee 2015
- Graduate admissions committee member: helped evaluate applications to math PhD program 2014
- On thesis committee for graduating PhD students: Dan Cuzzocreo, Liz Fitzgibbon, and Laura Ramirez ... 2014
- Member of Dynamical Systems postdoc hiring committee 2014
- Member of Statistics tenure-track hiring committee 2014
- Member of Statistics tenure-track hiring committee 2013
- On thesis committee for graduating PhD student Ikemefuna Agbanusi 2013
- Member of Stochastic Analysis postdoc hiring committee 2011
- Helped write and grade written qualifying exam in analysis for MA and PhD students 2011
- Co-organizer of joint Brown and Boston University PDE Seminar ..... 2009 - 2011
- Co-organizer of Dynamics Seminar ..... 2009 - 2011
- Helped write and grade written qualifying exam in analysis for MA and PhD students 2010
- Member of RULE committee: involved in the restructuring of introductory calculus classes 2010
- On thesis committee for graduating PhD student Matt Holzer 2010
- Member of Website Committee: participated in redesign of departmental webpage 2009-2010

Other Service within Boston University

- Attended the CAS DEI committees & liaison network summit ..... October 2021
- Served on panel during one meeting of FY103: Mastering the Art of Learning ..... February 2020
- Attended the STEM Writing Workshop, organized by the CAS Writing in the Disciplines Program and the Center for Teaching & Learning ..... June 2019

- Member of committee to redesign the Junior Year Interdisciplinary Research Methods Course at Kilachand Honors College ..... Spring 2018
- Member of the BU Undergraduate Advising Network ..... Fall 2015 - Spring 2018
- Member of the Brown Bag Lunch Subcommittee of the Advising Network ..... Spring 2017 - Fall 2018
- Member of the Committee planning the 2017 Advising Symposium, entitled "Bridging the Gap: Student Mental Health and Advising" 2016-2017
- CAS Interviewer for the BU SMED program 2016-2017

Other Service outside of Boston University

- On thesis committee for PhD student Milen Ivanov, Brown University 2021
- Reviewer for the book "Association for Women in Mathematics: The First Fifty YearsÑReminiscences, Participant History, and Visions for the Future", part of the AWM Springer series 2020
- On thesis committee for PhD student Stephanie Dodson, Brown University 2019
- On thesis committee for PhD student Elizabeth Makrides, Brown University 2015
- CANPDE Crash Courses Co-organizer 2011-2013
  Co-organizer of a series of mini-courses for PhD students, sponsored by the Centre for Analysis and Nonlinear PDEs (CANPDE) at Heriot-Watt University and the University of Edinburgh.
- Book proposal referee for SIAM (2011), Oxford University Press (2011), and DeGruyter (2010).

Professional Memberships

- American Mathematical Society (AMS)
- Association for Women in Mathematics (AWM)
- National Association of Mathematicians (NAM)
- Spectra, the Association for LGBTQ+ Mathematicians

Teaching and Mentoring Experience

Postdoc Mentoring

- Sponsoring Scientist for NSF Postdoctoral Fellow Montie Avery, Boston University, . September 2022 - present.
- Mentor for Departmental Postdoc Jonathan Jaquette, Boston University, ... September 2020 - present.
- Project mentor for Jonathan Jaquette, MSRI, Berkeley, CA ..... September - December 2018
  Jonathan is currently a postdoc at Brandeis University; we have one publication in preparation.
- Project mentor for Kelly McQuighan, Boston University ..... 2015 - 2017
  Kelly became employed at Google; our collaboration resulted in publication (11).
- Project mentor for Anna Barry and Nitsan Ben-Gal, IMA, Minneapolis, MN ..... September - December 2012
  Anna became a lecturer at the University of Auckland, New Zealand; Nitsan became a Data Science Specialist at 3M.

PhD Student Mentoring

- Advisor for PhD student Alanna Haslam, Boston University ..... expected graduation May 2025
- Advisor for PhD student Hannah Pieper, Boston University ..... expected graduation May 2023
- Co-advisor for PhD student Anthea Cheung, Boston University ..... graduated May 2019
- Co-advisor for PhD student Eric Cooper, Boston University ..... graduated May 2019
- Co-project mentor for PhD student Osman Chaudhary, Boston University ..... graduated May 2017
- Project mentor for PhD student Tommy McCauley, Boston University ..... graduated May 2016

Other Mentoring

- Advisor for MA student Lily Chou, Boston University ..... graduated May 2016
- Co-advisor for MSc (Masters of Science) student, Heriot-Watt University, ... Summer 2013
- Undergraduate project supervisor for the theses of 3 undergraduates at Heriot-Watt University .... Spring 2012

REU: Research Experience for Undergraduates

Faculty advisor, Summer@ICERM ..... Summer 2016
Eight-week REU at the Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI, involving 26 undergraduates, 3 faculty advisors, and several TAs.

Graduate Teaching

- Real Analysis (MA711), Boston University ..... Fall 2021
- Functional Analysis (MA717), Boston University ..... Spring 2021
- Ordinary Differential Equations (MA775), Boston University ..... Fall 2019
- Complex Analysis (MA713), Boston University ..... Spring 2018
- PDE Seminar (MA876), Boston University ..... Spring 2018
- Discrete Dynamical Systems (MA771), Boston University ..... Spring 2017
- Partial Differential Equations (MA776), Boston University ..... Fall 2015
- PDE Seminar (MA876), Boston University ..... Spring 2015
- Ordinary Differential Equations (MA775), Boston University ..... Spring 2014
- Ordinary Differential Equations (MA775), Boston University ..... Fall 2010
- Discrete Dynamical Systems (MA771), Boston University ..... Spring 2010

Undergraduate Teaching

- Introduction to Analysis I (MA511), Boston University ..... Fall 2022
- Honors Vector Calculus (MA230), Boston University ..... Spring 2022
- Introduction to Analysis I (MA511), Boston University ..... Fall 2021
- Process of Discovery (HC401), Boston University ..... Fall 2020
- Complex Variables (MA412), Boston University ..... Spring 2020
- Process of Discovery (HC401), Boston University ..... Fall 2019
- Methods of Applied Math (MA561 - Undergraduate PDEs), Boston University ..... Fall 2016
- Multivariate Calculus (MA225), Boston University ..... Fall 2016
- Multivariate Calculus (MA225), Boston University ..... Spring 2015
- Qualitative Differential Equations (MA573), Boston University ..... Fall 2014
- Calculus II (MA124), Boston University ..... Fall 2014
- Calculus II (MA124), Boston University ..... Spring 2014
- Topology, Heriot-Watt University, UK ..... Fall 2013
- Topology, Heriot-Watt University, UK ..... Fall 2011
- Multivariate Calculus (MA225), Boston University ..... Spring 2011
- Linear Algebra (MA242), Boston University ..... Fall 2009
- Linear Partial Differential Equations, University of Surrey, UK ..... Spring 2008