JUSTIN T. WEBSTER, PH.D.

Dept. of Mathematics and Statistics ◇ University of Maryland, Baltimore County
(410) · 455 · 2183 ◇ websterj@umbc.edu ◇ http://webster.math.umbc.edu/

EMPLOYMENT

University of Maryland, Baltimore County (UMBC), Dept. Math. and Stat.
Associate Professor with Tenure *2022–Present*
Assistant Professor *2017–2022*

College of Charleston (CofC), Department of Mathematics *2014–2017*
Assistant Professor

EDUCATION

North Carolina State University (NCSU), Department of Mathematics *2014–2015*
Postdoctoral Research Scholar, Mentor: Lorena Bociu

Oregon State University (OSU), Department of Mathematics *2012–2014*
Postdoctoral Scholar, Mentors: Ralph Showalter and Malgorzata Peszynska

University of Virginia, Ph.D., Mathematics *2008–2012*
Dissertation: *Analysis of Flow-Plate Interactions: Semigroup Well-Posedness and Long-Time Behavior*
Advisor: Irena Lasiecka, Now: University of Memphis, Dept. of Mathematical Science

University of San Diego, B.A., Mathematics, Minor in Physics *2004–2008*
Valedictorian, GPA: 4.0, Summa Cum Laude
Phi Beta Kappa (Phi of California), Inducted 2008

AWARDS, FUNDED PROPOSALS, AND FELLOWSHIPS

NSF DMS–2307538 (University Maryland, Baltimore County) *2023–2025*
Self-excitation, Limit Cycle Oscillations, and Control of Large Deflection Plate Models in Engineering Applications
Amount: $290,000. https://www.nsf.gov/awardsearch/showAward?AWD_ID=2307538&HistoricalAwards=false

Blavatnik National Award for Young Scientists Nominee *2023–2024*
UMBC Nominee for *Physical Sciences and Engineering*

Selected as GRIT-X 2023 Speaker (Office of Vice President of Research) *October 2023*

UMBC Strategic Awards for Research Transitions (START) *2023–2024*
Periodic Solutions in Fluid-Structure Interaction Problems
Amount: $20,000

UMBC College of Natural and Mathematical Sciences Early Career Faculty Excellence Award *2022*

UMBC Summer Research Faculty Fellowship (SURFF) *2020–2021*
Amount: $6000; supported international researcher (B. Muha, University of Zagreb, Croatia)

Blavatnik National Award for Young Scientists Nominee *2019–2020*
UMBC Nominee for *Physical Sciences and Engineering*

NSF DMS–1907620 (University Maryland, Baltimore County) *2019–2023*
Collaborative Research: Aeroelastic Limit Cycle Oscillations for Energy Harvesting Applications
UMBC Amount: $233,000, Total Amount: $738,000
DMS–1907620 (UMBC), DMS–1907500 (Duke), DMS–1908033 (Carnegie Mellon)
https://www.nsf.gov/awardsearch/showAward?AWD_ID=1907620&HistoricalAwards=false

UMBC Hrabowski Innovation Grant Proposal (with Kathleen Hoffman and Kal Nanes) *2019–2020*
Amount: $10,000; piloting "Introduction to Mathematical Reasoning" to reduce MATH 301 DFW rates

NSF DMS–1412238, 1504697, Supplement 1635281 *2014–2017*
Analysis and Control of Mathematical Models of Fluttering Plates
Amount: $120,276 https://www.nsf.gov/awardsearch/showAward?AWD_ID=1504697

Virginia Space Grant Consortium (NASA) Graduate Research Fellowship *2011–2012, 2012–2013*
Amount: $12,000 (total); Title: *Flow-Plate Interactions*

Barry M. Goldwater Scholarship, Mathematics *2006–2008*

PROPOSALS SUBMITTED (UMBC)

DoD MURI, AFOSR Topic 25: White Paper *2023-2027*
Lead PI: Webster, with: L. Bridgeman (Duke), S. Deffner (UMBC), E. Dowell (Duke),
F. Udwadia (Univ. South. CA), W. Zhu (UMBC), M. Zavalatos (Duke)
Total Amount: $7,500,000 (Not funded)

NSF ExpandQISE: Track 2 *2023–2027*
Senior Personnel/Faculty Associate
with: M. Pelton (UMBC); T. Mohsenin (UMBC); S. Deffner (UMBC);
T. Pittman (UMBC); E. Waks (UMCP)
Quantum at UMBC (QUMBC) Architectures and Devices for Resource-Efficient Quantum Networks
Total Amount: $5,000,000 (Not funded)

NSF-NIGMS Track 2: White paper *2023-2025*
Collaborative research: Advancing the design of a bioartificial pancreas using mathematical approaches
with: S. Čanić, University of California, Berkeley; L. Bociu, North Carolina State University;
and M. Bukać, Notre Dame University (Not funded)

NSF Focused Research Group, DMS–2150790 *2022–2025*
with: S. Čanić, University of California, Berkeley; L. Bociu, North Carolina State University;
and M. Bukać, Notre Dame University
Moving boundary problems in flow-poroelasticity interactions
UMBC Amount: $381,884 (Not funded)

NSF DMS–1812094 (University Maryland, Baltimore County) *2018–2021*
Flow-induced Instability of Nonlinear Plates: Transitional Regimes
Amount: $204,695 (Not funded)

NSF Focused Research Group, DMS–1760446 *2018–2021*
with: E. Dowell, Duke University and J. Howell, Carnegie Mellon University
The Nonlinear Dynamics of a Fluttering Cantilever with Application to Energy Harvesting
Amount: $580,403 (Not funded)

BOOKS AND BOOK CHAPTERS

(with I. Lasiecka) *Flutter Stabilization For An Unstable, Hyperbolic Flow-Plate Interaction*, in **Fluids under Control**, Advances in Mathematical Fluid Dynamics. Birkhäuser. March, 2024. https://link.springer.com/book/10.1007/978-3-031-47355-5

(with B. Kaltenbacher, I. Kukavica, I. Lasiecka, R. Triggiani, and A. Tuffaha)
Mathematical Theory of Flow/Fluid-Structure Interactions. **Oberwolfach Seminars**, Volume 48, 2018.
https://link.springer.com/book/10.1007/978-3-319-92783-1

PEER-REVIEWED PUBLICATIONS

(K. Hoffman, T. Williams, J.T. Webster, J. Harrison, K. Nanes) Assessing the Impact of A Interventional Proof-Writing Course, *submitted* 1/2024.

(with G. Avalos and E. Gurvich) Weak and Strong Solutions for a Fluid-Poroelastic-Structure Interaction via a Semigroup Approach, *submitted* 3/2024. http://arxiv.org/abs/2401.03897

(with L. Bociu and B. Muha) Mathematical Effects of Linear Visco-elasticity in Quasi-static Biot Models, *J. Mathematical Analysis and Application*, Vol. 527 (2), 2023. https://authors.elsevier.com/sd/article/S0022-247X(23)00465-1

(with A. Balakrishna and I. Lasiecka) Strong Stabilization of a 3D Potential Flow via a Weakly Damped von Karman Plate, *Mathematical Models and Methods in Applied Sciences*, Vol. 33 (3), 2023, pp. 505–545. https://www.worldscientific.com/doi/10.1142/S0218202523500124

(with L. Bociu and B. Muha) Weak Solutions in Nonlinear Poroelasticity with Incompressible Constituents, *Nonlinear Analysis Real World Applications*, Vol. 67, 2022. https://www.sciencedirect.com/science/article/pii/S1468121822000323

(with M. Deliyianni, K. McHugh, and E. Dowell) Dynamic Equations of Motion for Inextensible Beams and Plates, *Archives of Applied Mechanics*, 92(6), 2022, pp. 1929–1952. https://link.springer.com/article/10.1007/s00419-022-02157-7

(with E. Gurvich) Weak Solutions for a Poro-elastic Plate System, *Applicable Analysis*, Vol. 101 (5), 2022, pp. 1617–1636. https://www.tandfonline.com/doi/full/10.1080/00036811.2021.1953483

(with L. Bociu, S. Čanić, and B. Muha) Multilayered Poroelasticity Interacting with Stokes Flow, *SIAM J. Mathematical Analysis*,Vol. 53 (6), 2021, pp.6243–6279. https://epubs.siam.org/doi/abs/10.1137/20M1382520

(with L. Bociu) Nonlinear Quasi-static Poroelasticity, *J. Differential Equations*, Volume 296 (25), 2021, pp. 242–278. https://www.sciencedirect.com/science/article/abs/pii/S0022039621003703

(with D. Bonheure, F. Gazzola, and I. Lasiecka) Long-time dynamics of a hinged-free plate driven by a non-conservative force, *Annales de l'Institut Henri Poincaré, Analyse Non Lineaire*, Vol. 39 (2), 2022, pp. 457–500. https://arxiv.org/abs/2007.01801

(with M. Deliyianni) Theory of solutions for an inextensible cantilever, *Applied Mathematics and Optimization*, Volume 84, 2021, pp. 1345–1399. https://link.springer.com/article/10.1007/s00245-021-09798-0

(with A. Balakrishna) Large Deflections of A Structurally Damped Panel in A Subsonic Flow, *Nonlinear Dynamics*, Volume 103, 2021, pp. 3165–3186. https://link.springer.com/article/10.1007/s11071-020-05805-1

(with M. Deliyianni, V. Gudibanda, and J. Howell) Large Deflections of Inextensible Cantilevers: Modeling, Theory, and Simulation, *Mathematical Modelling of Natural Phenomena*, 15 (44), 2020. https://www.mmnp-journal.org/articles/mmnp/abs/2020/01/mmnp190148/mmnp190148.html

Attractors and Determining Modes for a Panel Flutter Model: Finite Dimensionality Out of Thin Air, *Pure and Applied Functional Analysis*, Volume 5, 1, 2020, pp. 85–119. http://www.ybook.co.jp/online2/oppafa/vol5/p85.html

(with K. Huneycutt, J. Howell, and S. Wilder) A Thorough Look at the (In)stability of Piston-Theoretic Beams, *Mathematics in Engineering*, Volume 1, 3, 2019, pp. 614–647. https://www.aimspress.com/article/10.3934/mine.2019.3.614

(with G. Avalos and P.G. Geredeli) A Linearized Viscous, Compressible Flow-Plate Interaction with Non-dissipative Coupling, *J. Mathem. Analy. Appl.*, Volume 477, 1, 2019, pp. 334–356. https://www.sciencedirect.com/science/article/pii/S0022247X19303476?via%3Dihub

(with J. Howell and D. Toundykov) A Cantilevered Extensible Beam in Axial Flow: Semigroup Solutions and Post-flutter Regimes, *SIAM J. Math. Analy.*, Volume 50, 2, 2018, pp. 2048–2085. https://epubs.siam.org/doi/abs/10.1137/17M1140261

(with G. Avalos and P.G. Geredeli) Semigroup Well-posedness of A Linearized, Compressible Fluid with An Elastic Boundary, *Discrete Contin. Dyn. Syst. Ser. B*, Volume 23, 3, 2018, pp. 1267–1295. http://aimsciences.org/article/doi/10.3934/dcdsb.2018151

(with J. Howell and I. Lasiecka) Quasi-stability and Exponential Attractors for A Non-Gradient System—Applications to Piston-Theoretic Plates with Internal Damping, *Evol. Equns. Control Theory*, Volume 5, 4, 2016, pp. 567–603. https://aimsciences.org/journals/displayArticlesnew.jsp?paperID=13192

(with G. Avalos and P.G. Geredeli) Finite Dimensional, Smooth Attractors for A Non-rotational Berger Plate with Dissipation Acting on...the Boundary, *Comm. Pure Appl. Analy.*, Volume 15, 6, 2016, pp. 2301–2328. http://aimsciences.org/journals/displayArticlesnew.jsp?paperID=13047

(with E. Dowell, I. Chueshov, and I. Lasiecka) Mathematical Aeroelasticity: A Survey, *Mathem. Engin. Sci. Aerosp.*, Volume 7, 2016, pp. 1–26. http://nonlinearstudies.com/index.php/mesa/article/view/1283

(with E. Dowell, I. Chueshov, and I. Lasiecka) Nonlinear elastic plate in a flow of gas: Recent results and conjectures, *Appl. Math. Optim.*, Volume 73, 2016, pp. 475–500. http://link.springer.com/article/10.1007/s00245-016-9349-1

(with L. Bociu, G. Guidoboni, R. Sacco) Analysis of nonlinear poro-elastic and poro-visco-elastic models, *Arch. Rational Mech. Analy.*, Volume 222, 3, 2016 pp. 1445–1519. http://link.springer.com/article/10.1007/s00205-016-1024-9?wt_mc=Internal.Event.1.SEM.ArticleAuthorOnlineFirst

(with P.G. Geredeli) Qualitative Results on the Dynamics of A Berger Plate with Nonlinear Boundary Damping, *Nonlin. Analy. B*, 31, 2016, pp. 227–256; published online, February 2016: DOI:10.1016/j.nonrwa.2016.02.002.
http://www.sciencedirect.com/science/article/pii/S1468121816000195

(with I. Lasiecka) Feedback stabilization of a fluttering panel in an inviscid subsonic potential flow, *SIAM J. Math. Analy.*, 48, 3, 2016, pp. 1848–1891. http://epubs.siam.org/doi/abs/10.1137/15M1040529

(with M. Peszynska and R.E. Showalter) Advection of methane in the hydrate zone: Model, analysis, and examples, *Math. Meth. Appl. Sci.*, Volume 38, 18, 2015, pp. 4613–4629. http://onlinelibrary.wiley.com/doi/10.1002/mma.3401

(with I. Lasiecka) Eliminating flutter in clamped von Karman plates immersed in subsonic flows, *Comm. Pure Appl. Analy.*, Volume 13, 5, 2014, pp. 1935–1969.https://www.aimsciences.org/journals/displayArticlesnew.jsp?paperID=9987

(with I. Lasiecka) Kutta-Joukowski flow conditions in flow-plate interactions: subsonic case, *Nonlinear Analy. B*, Volume 7, 2014, pp. 171–191. http://www.sciencedirect.com/science/article/pii/S1468121813001235

(with I. Chueshov and I. Lasiecka) Flow-plate interactions: Well-posedness and long-time behavior, *Discrete Contin. Dyn. Syst. Ser. S, Special Volume: New Developments in Mathematical Theory of Fluid Mechanics*, Volume 7, 5, 2014, pp. 925–965. http://aimsciences.org/journals/displayArticlesnew.jsp?paperID=9873

(with P.G. Geredeli) Decay rates to equilibrium for nonlinear plate equations with geometrically constrained, degenerate dissipation, *Appl. Math. Optim.*, Volume 68, 2013, pp. 361–390.
http://link.springer.com/article/10.1007/s00245-013-9210-8

(with I. Chueshov and I. Lasiecka) Attractors for delayed, non-rotational von Karman plates with applications to flow-structure interactions without any damping, *Comm. PDE*, Volume 39, 11, 2014.
http://www.tandfonline.com/eprint/ARUs3wgC9ih2hzZBGjs3/full#.U_5H3rywLV5

(with I. Chueshov and I. Lasiecka) Evolution semigroups in supersonic flow-plate interactions, *J. Diff. Equns.*, Volume 254, Issue 4, 2013, pp. 1741–1773, ISSN 0022-0396, 10.1016/j.jde.2012.11.009.
http://www.sciencedirect.com/science/article/pii/S0022039612004342

(with P.G. Geredeli and I. Lasiecka) Smooth attractors of finite dimension for von Karman evolutions with nonlinear frictional damping localized in a boundary layer, *J. Diff. Equns*, Volume 254, Issue 3, 2013, pp. 1193–1229, ISSN 0022-0396, 10.1016/j.jde.2012.10.016. http://www.sciencedirect.com/science/article/pii/S0022039612004093

(with I. Lasiecka) Generation of bounded semigroups in nonlinear subsonic flow-structure interactions with boundary dissipation, *Math. Meth. Appl. Sci.*, Volume 36, 2013, pp. 1995–2010.
http://onlinelibrary.wiley.com/doi/10.1002/mma.1518/full

Weak and strong solutions of a nonlinear subsonic flow-structure interaction: Semigroup approach, *Nonlinear Analy. A*, Volume 74, Issue 10, July 2011, pp. 3123–3136, ISSN 0362-546X, 10.1016/j.na.2011.01.028.
http://www.sciencedirect.com/science/article/pii/S0362546X11000459

(with D. P. Sheehan and L.M. Baird) Orthogonally-oriented nanotube arrays: Experiment I, *J. Nanosci. Nanontech.*, Volume 7, Issue 10, 2007, pp. 3653–3661.
http://www.ingentaconnect.com/content/asp/jnn/2007/00000007/00000010/art00048

PROCEEDINGS, GENERAL AUDIENCE PIECES, POSTERS

(with Kathleen Hoffman, Kal Nanes, Justin Webster, Jennifer Harrison, Kerrie Kephart, Tory Williams) Impact of an Interventional Proof-writing Course, Poster for UMBC Provost's Teaching and Learning Symposium, April 2023

Virtual Poster (Student Presenter: K. Lilly), JMM, January 2021 and February 2021

(with J. Howell and V. Gudibanda) Dynamics of the Inextensible Inverted Flag with Piston-Theoretic Forcing Term, Poster, JMM, Baltimore, MD, January 2019. (Presenter: V. Gudibanda)

The invisible power of 'flutter' — from plane crashes to snoring to free energy, *The Conversation*, March 2018.
https://theconversation.com/the-invisible-power-of-flutter-from-plane-crashes-to-snoring-to-free-energy-91796
Featured in: *Scientific American, Los Angeles Times, Chicago Tribune, San Francisco Chronicle*, 7500 reads

(with I. Lasiecka and I. Chueshov) Nonlinear Flow-Structure Interactions, *Nonlinear World—Journal of Interdisciplinary Nature*, 1(1), December 2017, pp. 31–50.

(with D. Prada, R. Sacco, B. Cockburn, L. Bociu, B. Siesky, A. Harris, and G. Guidoboni) Influence of tissue viscoelasticity on the optic nerve head perfusion: a mathematical model, Poster #3558, Annual Meeting of the Association for Research in Vision and Opthamology, May 2016. (Presenter: D. Prada)

(with I. Lasiecka) Stabilization of a nonlinear flow-plate interaction via component-wise decomposition, XV International Conference on Hyperbolic Problems: Theory, Numerics, Applications, July 2014, IMPA, Rio de Janeiro, Brazil, *Bull. Braz. Math. Soc.*, New Series 47(2), 2016, pp. 489–506. (*peer-reviewed*)

(with I. Lasiecka) Controlling Flutter for Nonlinear Panels in Subsonic Flows via Nonlinear Mechanical Feedback, IEEE 53rd Conference on Decision and Control, Session on Control of First and Second Order PDEs, 2014, DOI: 10.1109/CDC.2014.7039443, pp. 577–582. (*peer-reviewed*)

(with I. Lasiecka) Long-time dynamics and control of subsonic flow-structure interactions, American Control Conference (ACC), 2012, pp. 658–663, 27-29 June 2012. (*peer-reviewed*) `http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6315219`

POST-DOCTORAL RESEARCHERS

Rasika Mahawategge *2022–Present*
Career and Teaching Mentor

STUDENTS

Ph.D. (UMBC)

Ellie Gurvich, Ph.D., Applied Mathematics *2019–Present*
ABD, Anticipated completion: Spring 2024

Galen Richard, Ph.D., Applied Mathematics *2022–Present*
Reading

Abhishek Balakrishna, Ph.D., Applied Mathematics (joint with A. Biswas) *2018–2023*
Dissertation: "Infinite Dimensional Dynamical Systems In Fluid Dynamics And Fluid-Structure Interaction"
UMBC Mathematics Graduate: Research Award (2022,2023); Teaching Award (2022)
Now: Postdoctoral Researcher at the University of Southern California

Maria Deliyianni, Ph.D., Applied Mathematics *2017–2022*
Dissertation: "Modeling and PDE Theory for The Large Deflections of Elastic Cantilevers"
UMBC Mathematics Graduate: Research Award (2021); Teaching Award (2021)
Now: Postdoctoral Researcher at the University of Arizona Partially supported by NSF DMS–1907620

M.S.

Peter Lavagnino, Applied Mathematics *2021–2023*
M.S. in Spring 2023 (project option)
Project: "Semigroup Weak Solutions for Mildly Degenerate Linear Poro-elasticity"

Katelynn Huneycutt, Ph.D., Applied Mathematics *2019–2020*
Qualified for Ph.D., M.S. in Spring 2020 (transferred)

Austin Mishoe, M.S. (CofC) *2016–2017*
Co-advised with J. Howell, Project: Beam flutter in axial flows
Partially supported by NSF DMS–1635281

Undergraduate Research Advisor (Since 2015)

Evan Sheldon (UMBC) *2023–present*
Supported by: Vivian Thomas Scholars Initiative Sustained Research Stipend

Isaac Benson (UMBC) *2023–2024*

Rachel Dolle (Carnegie Mellon University) *Summer 2021, 2022*
Co-advised with J. Howell, Project: Modal analysis of bridge flutter
Supported by: NSF DMS—1907620 (UMBC), DMS–1908033 (CMU)

Kaitlynn Lilly (UMBC) *2018–2022*
Co-advised with J. Howell, Project: Spectral properties of non-self adjoint beam models
Supported by: Meyerhoff Scholars, NSF DMS—1907620 (UMBC), DMS—1908033 (CMU)

NSF GRFP, DOD SMART, DOE, Ford Fellowships Winner, 2022
Goldwater Scholar, 2021
Now: Ph.D. program in Applied Mathematics at the University of Washington

Benjamin Brown (UMBC) *2021–2022*
Co-advised with J. Howell, Project: Simulating piezoelectric cantilevers
Supported by: NSF DMS—1907620 (UMBC), DMS–1908033 (CMU)
Now: Ph.D. program in Physics at Brown University

Anna Moskaleva (Carnegie Mellon University) *Summer 2021*
Co-advised with J. Howell, Project: Finite Difference models for elastic plates
Supported by: NSF DMS—1907620 (UMBC), DMS–1908033 (CMU)

Anrey Peng (Carnegie Mellon University) *Summer 2020*
Co-advised with J. Howell, Project: Cantilever limit cycles
Supported by: NSF DMS—1907620 (UMBC), DMS–1908033 (CMU)

Varun Gudibanda (Carnegie Mellon University) *2018–2019*
Co-advised with J. Howell, Project: Inextensible beams, inverted flags
Supported by: Carnegie Mellon University Summer Undergraduate Research Fellowship (2018)
Now: Ph.D. program in Applied and Computational Mathematics at the University of Wisconsin-Madison

Undergraduate Mentor, UMBC Students
Meghan Kwon *2022–2024*
GRFP and Graduate Applications

Kristen Galuska *2022*
Post-graduation Applications; Teaching

Applied Math Bootcamp Students (UMBC) *Summer 2023*
Isaac Benson, Evan Sheldon, Ben Kirn

Zinedine Partipilo Cornielles (2022 CAHSS Valedictorian) *2021–2022*
Graduate Applications
Now: Pre-doctoral Program at Harvard Univ.

Myles Ellis *2017–2018*
Graduate Applications
Now: Doctoral Candidate at Brown Univ.

Ph.D. Committee Member (non-advisor)
Carlos Barajas *4/1/2022*
Guy Djokam *11/5/2021*

SELECTED INVITED/SUPPORTED RESEARCH VISITS (SINCE 2018)

Politecnico di Milano, Italy (sabbatical visit) *March–April 2024*
Vittorino Pata, Filippo Gazzola, Alessio Falocchi, Riccardo Sacco, Paolo Zunino

Politecnico di Milano, Italy (one week) *March 2023*
Vittorino Pata and Filippo Gazzola

University of Bergen, Norway (two days) *July 2022*
Research Group of Jakub Both

University of Zagreb, Croatia (one week) *July 2018, 2019, March 2022*
Department of Mathematical Sciences, Boris Muha

Czech Academy of Sciences (one week) *July 2019, March 2022*
Institute of Mathematics, Sarka Necasova (Eminent Scholar Mentor)

Iowa State University (one week) *September 2021*
Scott Hansen and Pelin Geredeli (and G. Avalos, University of Nebraska-Lincoln)

Penn State University (one week, with student M. Deliyianni) *September 2021*
Anna Mazzucato

NYU Abu Dhabi, UAE (one week) *February 2020*
Anna Mazzucato (on leave from Penn State University)

Politecnico di Milano, Italy (one week) *March 2019*
Department of Mathematics, Filippo Gazzola

Duke University (one day) *May 2018*
Aeroelasticity Research Group, Department of Mechanical Engineering, Earl Dowell

Carnegie Mellon University (one week) *April 2018*
Department of Mathematics, Jason Howell

PRESENTATIONS (SINCE 2019)

Invited Talk, Equadiff 2024, Karlstadt, Sweden, June 2024

Invited Talk, Novisad University, Serbia, April 2024

Invited Talk, Baylor University, Applied Mathematics Colloquium, February 2024

Invited Talk, University of Maryland, College Park, PDE Seminar, November 2023

Grit-X 2023 Invited Speaker, UMBC Homecoming Weekend, October 14, 2023

Invited Talk, Panelist (virtual), University of Arizona Graduate Student Seminar, September 26, 2023

Invited Talk, 10th International Congress on Industrial and Applied Mathematics, Tokyo, Japan, August 2023
Special Session: Numerical methods for fluid-structure interaction and poroelasticity

Invited Talk, Drexel University PDE/Applied Mathematics Seminar, April 2023

Invited Talk, Reflections on Mathematical Fluid Dynamics, University of Virginia, March 2023

Invited Talk, ApplMath22, Briuny, Croatia, September 2022

Invited Talk, EQUADIFF 15, Brno, Czech Republic, July 2022

Invited Talk, University of Bergen, Special Seminar, July 2022

Invited Talk, First Year Graduate Seminar, Oregon State University, May 2022

Invited Presentation, UMBC President's Research Council (invitation: VPR Karl Steiner), March 2022

Invited Talk, Georgetown University Mathematics and Statistics Colloquium, March 2022

Invited Talk, Faculty of Mathematics, University of Zagreb, Croatia, March 2022

Invited Talk (virtual), University of Nebraska-Lincoln PDE Seminar, March 2022

Invited Talk (virtual), State University of Londrina (Brazil) Summer Lecture Series, March 2022

Local Talk, UMBC Differential Equations Seminar, November 2021

Local Talk (virtual), UMBC Applied Mathematics Colloquium, October 2021

Invited Talk (virtual), IFIP TC 7 Conference on System Modelling and Optimization, August 2021
Special Session: Qualitative and quantitative analysis of nonlinear evolutionary partial differential equation

Invited Talk (virtual), 8th European Conference of Mathematics, Special Session on Analysis, Control and Inverse problems for Partial Differential Equations, June 2021, Portoroz, Slovenia

Invited Talk (virtual), Western Kentucky University, SIAM Undergraduate Student Chapter, April, 2021

Invited Talk (virtual), University of California, Riverside PDE and Applied Mathematics Seminar, January 2021

Invited Talk (virtual), Baylor University, Mathematics Colloquium, October 2020

Invited Talk (virtual), Universitat Würzburg, Institut für Mathematik,
Oberseminar Mathematik in den Naturwissenschaften, July 2020

Invited Talk, Duke University Mechanical Engineering, Aeroelasticity Group, March 2020

Invited Talk, The Third International MathStat Conference, American University of Sharjah, UAE, February 2020

Invited Talk, NYU (Abu Dhabi) Mathematics Seminar, February 2020

Invited Talk, SIAM PDE: Special Session on Applicable and Numerical Analysis and Control Theory for FSIs , La Quinta, CA, December 2019

Invited Talk, University of San Diego Department of Mathematics Colloquium, San Diego, CA, December 2019

Invited Talk, Croatian Mathematical Society Colloquium (University of Zagreb), June 2019

Invited Talk, Workshop for Fluid-Structure Interactions, Politecnico di Milano, March 2019

Invited Talk, AMS Southeastern Sectional Meeting: Special Session on Mathematical Analysis and Control Theory of Coupled Partial Differential Equation Models, Auburn, AL, March 2019

In-session Talk, JMM: Special Session on Flow-Induced Stability of Elastic Structures, Baltimore, MD, January 2019

STUDENT PRESENTATIONS (SINCE 2019)

Local Talk (Students: E. Sheldon and I. Benson), UMBC Differential Equations Seminar, May 2024

Local Talk (Student: E. Gurvich), UMBC Differential Equations Seminar, March 2024

Local Talk (Student: E. Gurvich), UMBC Differential Equations Seminar, December 2023

Local Talk (Student: A. Balakrishna), UMBC Differential Equations Seminar, May 2023

Local Talk (Student: P. Lavagnino), UMBC Differential Equations Seminar, May 2023

Invited Talk (Student: A. Balakrishna), University of Virginia PDE Seminar, November 2022

Invited Talk (virtual) (Student: A. Balakrishna), University of California-Berkeley, Applied PDE Seminar, November 2022

Invited Talk (Student: E. Gurvich), AMS Sectional Meeting, Chattanooga, TN, October 2022

Invited Talk (Student: A. Balakrishna), AMS Sectional Meeting, Salt Lake City, UT, October 2022

Invited Talk (Student: A. Balakrishna), SAYAS Conference, UMBC, Baltimore, September 2022

Invited Talk (virtual) (Student: E. Gurvich), University of Nebraska-Lincoln PDE Seminar, May 2022

Invited Talk (Student: A. Balakrishna), U.S. Naval Academy Applied Mathematics Seminar, April 2022

Contributed Talk, (Student: E. Gurvich), Shanks PDE, Vanderbilt University, February 2022

Invited Talk (Student: M. Deliyianni), Northwestern University Applied Mathematics Seminar, February 2022

Local Talk (Student: E. Gurvich), UMBC Differential Equations Seminar, November 2021

Invited Talk (Student: A. Balakrishna), University of Memphis, PDE Seminar, July, 2021

Local Talk (virtual) (Student: K. Lilly), UMBC Differential Equations Seminar, October 2020

Local Talk (Student: A. Balakrishna), UMBC Differential Equations Seminar, October 2019

Invited Talk (Student: M. Deliyianni), SIAM Central States Section, Ames, IA, October 2019

Local Talk (Student: K. Huneycutt), UMBC Differential Equations Seminar, September 2019

WORKSHOPS PARTICIPANT (SINCE 2019)

Simons Laufer Mathematical Sciences Institute (MSRI) Workshop *December 4–8th, 2023*
Hot Topics: Recent Progress in Deterministic and Stochastic Fluid-Structure Interaction

Workshop on Fluid-Structure Interactions (*Invited principal lecturer (1 hour)*) *March 18–20, 2019*
Politecnico di Milano, Italy

PROFESSIONAL ACTIVITIES

Editor:

Evolution Equations and Control Theory — *June 2022–Present*
Associate Editor

Nonlinear Dynamics — *2019–2024*
Subject Editor: Nonlinear PDE

(Guest) *Research in the Mathematical Sciences*, 2024
Special volume on PDE-CONTROL, FROM CLASSICAL TO EMERGING THEMES AND METHODS.
`https://www.springer.com/journal/40687`

(Guest) *Evolution Equations and Control Theory*, Volume 5, 4, 2016
Special volume on fluid-structure interactions, SIAM Conference on Analysis of PDEs 2015.
`http://www.aimsciences.org/journal/A0000-0000/2016/5/4`

Trainings and Certificates:

Active Learning, Inquiry Teaching (ALIT) Certificate Program (completed: May 2020) — *2018–2020*
UMBC Faculty Development Center

Green Zone Training (Supporting UMBC's Military Students) — *October 9, 2018*
Contact: Dr. Rick Forno, UMBC

Entrepreneurial Skillset Training Program (one week) — *January 2018*
Center for Leadership and Innovation, UMBC Training Centers

Professional Socieities:

IFIP TC7, Working Group 7.2 — *2021–present*
Sigma Xi ($\Sigma\Xi$) — *2020–present*
Society for Industrial and Applied Mathematics (SIAM) — *2013–present*
American Mathematical Society (AMS) — *2013–present*

General Professional Development:

Teaching STEM — *January 24, 2020*
UMBC Faculty Development Center Workshop

UMBC College of Natural and Mathematical Sciences NSF CAREER Workshops — *February–June 2019*

Teaching for Inclusive Excellence — *April 10, 2019*
UMBC Faculty Development Center Workshop

American Association for the Advancement of Sciences (AAAS) — *March 25, 2019*
Science Communication and Engagement with Religious Audiences

Active Learning in Practice — *March 7, 2019*
UMBC Faculty Development Center Workshop

Provost Teaching and Learning Symposium — *March 1, 2019*
UMBC Faculty Development Center Workshop

Curriculum Mapping I — *February 21, 2018*
UMBC Faculty Development Center Workshop

Active Learning Fundamentals — *February 12, 2018*
UMBC Faculty Development Center Workshop

Designing, Scaffolding, & Grading Assignments — *September 5, 2018*
UMBC Faculty Development Center Workshop

Committee:

Brijuni Applied Mathematics Workshop (Croatia)
Summer 2021, International Scientific Committee

AMS Southeast Sectional Meeting Local Organizing Committee
Spring 2017, College of Charleston, Charleston, SC.

Organizer (Since 2019):

Special Session: PDE Theory for Fluid-Structure Interactions
with A. Falocchi (Politecnico di Milano, Italy), AMS-UMI 2nd Joint Meeting, Palermo, Italy, July 23–26, 2024

Special Session: Analysis of PDE in Inverse Problems and Control Theory
with M. Eller (Georgetown Univ.), AMS 2023 Eastern Sectional, Howard University, Washington DC, April 6–7, 2024

Simons Laufer Mathematical Sciences Institute (MSRI) Workshop: Hot Topics: Recent Progress in Deterministic and Stochastic Fluid-Structure Interaction
with S. Canic, J. Kuan, and M. Bukac, December 4–8th, 2023

Applied Mathematics Bootcamp (at Carnegie Mellon University)
with J. Howell (CMU); 6/12–17/2023
NSF-supported intensive training for UMBC undergraduates: Isaac Benson, Evan Sheldon, Ben Kirn

Special Session: Bifurcations, periodicity and stability in fluid-structure interactions
with B. Muha and S. Schwarzacher, ICIAM 2023, Tokyo (Japan), August 20–25, 2023

Special Session: Fluid-Structure Interactions in Application
with B. Muha, S. Necasova, and A. Schlomerkemper, SIAM PDE, Berlin (Germany), March 22–29, 2022, Virtual

Special Session: Fluid-Poro-Elastic Structure Interactions
with L. Bociu, IFIP TC 7 Conference on System Modelling and Optimization, August 30–September 3, 2021, Virtual

Special Session: Mathematical Analysis: The interaction of Fluids/viscoelastic Materials and Solids
with B. Muha, 8th European Congress of Mathematics, 2021, Portoroz, Slovenia

Referee/Reviewer:
J. Functional Analysis, J. of Abstract Differential Equations and Applications, Applicable Analysis, Applied Mathematics and Computation, Applied Mathematical Modelling, Computational Optimization and Applications, Discrete and Continuous Dynamical Systems, J. Optimization Theory and Application, Mathematics in Engineering, Evolution Equations and Control Theory, Asymptotic Analysis, Indiana Univ. Mathematics J., J. of Mathematical Analysis and Applications, J. of Mathematical Physics, SIAM J. on Numerical Analysis, Mathematische Nachrichten, Nonlinear Analysis A: Theory, Method, and Application, Nonlinear Analysis B: Real World Applications, Zeitschrift für Angewandte Mathematik und Physik, Zeitschrift für Angewandte Mathematik und Mechanik, J. of Fluids and Structures, Automatica, J. of Aerospace Engineering, Applied Mathematics and Optimization, Nonlinear Dynamics, International J. of Dynamical Systems and Differential Equations, Mathematical Methods in the Applied Sciences, AMS Mathematical Reviews, SIAM J. of Mathematical Analysis, Nonlinearity, J. Optimization Theory, SIAM J. of Applied Mathematics, J. Mathematical Fluid Mechanics, J. of European Mathematics, Numerische Mathematik, Nonlinear Differential Equations and Applications, Mathematical Models and Methods in Applied Sciences, Advances in Mathematical Fluid Mechanics (series)

Institute of Physics (IOP), Awarded: *Distinguished Reviewer 2023*; *Trusted Reviewer Status May 2022*

External Examiner:

Ph.D. thesis committee in Mathematics for: Lorenzo Liverani Politecnico di Milano, Italy	*February 2023*
Ph.D. thesis committee in Mathematics for: Clara Patriarca Politecnico di Milano, Italy	*February 2023*
Ph.D. thesis committee in Mechanical Engineering for: Kevin McHugh Duke University	*March 2020*
MSc/MA thesis in Applied Mathematics for: Nicholas I-Hsien Kuo University of Auckland, New Zealand	*May 2017*

External Panelist/Ad Hoc Reviewer:

National Science Foundation DMS	*2020, 2023*

TEACHING EXPERIENCE

University Maryland, Baltimore County

Introduction to Proofs (300 level), 2 semesters	*2022–2023*
Introduction to Complex Analysis (400 level), 1 semester	*2021–2022*
Introduction to Analysis (300 level), 1 semester	*2020–2021*
Introduction to Differential Equations (200 level), 2 semesters	*2020–2022*
Special Topics in Applied Math: Semigroups and Unbounded Operators (700 level), 3 semesters	*2019–2023*
Special Topics in Applied Math: Modern Methods in PDEs (700 level), 1 semester	*2018–2019*
Partial Differential Equations (600 level), 5 semesters	*2018–2023*

Introduction to Partial Differential Equations (400 level), 8 semesters *2017–2023*
Ordinary Differential Equations (600 level), 1 semester *2017–2018*

Politecnico di Milano
Fluid and Flow Structure Interactions, 25 hours *March 2024*

SERVICE

Profession
Goldwater Scholars Community Mentorship Program (Undergraduate Mentor) *2022–Present*
2023–2024 Katie Traynelis, North Carolina State University
2022–2023: Ethan Brady, Purdue University
NSF Graduate Fellowship recipient in 2023
Now: Ph.D. program in Applied Mathematics at Brown University

University of Maryland, Baltimore County
Faculty Volunteer for the Science Olympiad (for CNMS; Math & Stat) *January 13th, 2024*
Faculty ADVANCEment Workshop Panelist (for CNMS) *May 8th, 2023*
Council of University System Faculty (CUSF) Member (UMBC Representative) *2021–Present*
ΦBK Board (Vice President) *2018–Present*
Local representative and Board Member of the ΦBK Greater Baltimore Alumni Association *2017–Present*
Faculty ADVANCEment Workshop Panelist (for CNMS) *April 19th, 2022*

Letters of Recommendation Composed for UMBC Students:
Undergraduate: 50 Graduate: 20

University of Maryland, Baltimore County Mathematics and Statistics Department
Mathematics and Statistics Lecturer Hiring Committee; *2023–2024*
Committee on Enrollment Growth and Outreach *Fall 2023–Present*
IIME (Pi Mu Epsilon) Advisor/Committee Chair *2017–Present*
Co-organizer of the Applied Mathematics Colloquium *2022–Present*
Committee on DEIA Departmental Documentation *Spring 2023*
Applied Mathematics Tenure Track Hiring Committee; **co-Chair** *2022–2023*
Postdoctoral Scholar in Applied Mathematics Hiring Committee *Spring 2022*
Organizer of the Differential Equations Seminar *2018–2022*
Undergraduate Program Committee *2020-Present*
IIME Faculty Research Panel *March 30, 2022*
Mentor for NSF Graduate Proposal (K. Lilly) *Fall 2021*
Departmental Recruitment Open House (COVID) *Spring 2020, 2021, 2022*
SIAM Graduate Student Association Event Speaker ("How to Give A Talk") *Spring 2020*
Departmental Representative at Spring Scholar Luncheon *Spring 2020*
Mentor for NSF Graduate Proposal (K. Huneycutt) *Fall 2019*
Mentor for NSF Graduate Proposal (E. Gurvich) *Fall 2019*
Host/planner Special Joint Seminar (with Mechanical Engineering) hosting Earl Dowell (Duke) *Fall 2019*
Qualitative Measures in P&T Committee Member *Spring 2018*
BOOST Post-Baccalaureate Program Committee; senior proposal personnel *2017–2018*
Departmental CNMS Awards Committee *2018–2019*

University of Maryland, Baltimore County Recruitment/Outreach Events
UMBC Meyerhoff Scholars Program: *Summer Bridge Program*; *July 20, 2023*
UMBC Majors Fair *November 2023*
UMBC Meyerhoff Scholars Program: *Summer Bridge Program*; *June 24, 2021*
UMBC Majors Fair *November 2022*
UMBC Meyerhoff Scholars Program: *Summer Bridge Program*; *June 24, 2021*
UMBC: *Reception for Academically Talented Latinx Prospective Students* *April 25, 2019*
UMBC: *Retriever Days, Mathematics and Statistics Representative* *November 5, 2018*
UMBC: *Reception for Academically Talented African American Prospective Students* *April 30, 2018*
Virginia State University Mathematics Seminar *March 2018*
Mary Baldwin University Mathematics Club *February 2018*