

Gung-Min Gie

Department of mathematics
University of Louisville
Louisville, KY 40292

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I. Educational History

Ph.D. in Applied Mathematics, Indiana University, 2010
Thesis advisor: Roger Temam
Ph.D. minor in Scientific Computing, Indiana University, 2010
B.S. in Mathematics, Korea University, 2002

II. Employment History

Associate Professor, University of Louisville, Jul. 2018 - present
Assistant Professor, University of Louisville, Jul. 2014 - Jun. 2018
Visiting Associate Professor, Ulsan National Institute of Science and Technology (UNIST), Korea, Dec., 2020 - Dec. 2021
Visiting Scholar, Ulsan National Institute of Science and Technology (UNIST), Korea, Jul., 2019
Visiting Scholar, Ulsan National Institute of Science and Technology (UNIST), Korea, May, 2017
Visiting Scholar, Ulsan National Institute of Science and Technology (UNIST), Korea, Jul., 2016
Visiting Assistant Professor, Indiana University, Fall 2013 - Spring 2014
Visiting Assistant Professor, University of California, Riverside, Fall 2010 - Spring 2013
Visiting Scholar, Ulsan National Institute of Science and Technology (UNIST), Korea, Jul., 2011
Teaching and Research Assistant, Indiana University, Fall 2003 - Spring 2010

III. Honors and Funded Grants

Finalist for Outstanding Scholarship, Research, and Creative Activity Awards, Basic and Applied Sciences (not awarded), Mar. 2023, College of Arts and Sciences, University of Louisville
Ascending Star Fellow, Jun. 2022 - May 2023, Office of the Executive Vice President for Research and Innovation, University of Louisville
Collaboration Grant for Mathematicians, Sep. 2019 - Aug. 2024, Simons Foundation
Brain Pool (BP) program, Grant No. : 2020H1D3A2A01110658, 15 Dec. 2020 - 14 Dec. 2021, National Research Foundation of Korea (NRF)
Research - RII Grant, Jan. 2020 - Dec. 2021, Office of the Executive Vice President for Research and Innovation, University of Louisville
Research - RI Grant, Jan. 2017 - Dec. 2017, Office of the Executive Vice President for Research and Innovation, University of Louisville
Victor A. Olorunsola Endowed Research Award for Young Scholars, Jul. 2015 - Jun. 2016, College of Arts and Sciences, University of Louisville
NSF grant DMS-1212141, Sep. 2012 - Aug. 2016, Co-PI with J. P. Kelliher
AMS-Simons Travel Grant, Jul. 2012; used only before winning the concurrent NSF grant
Rothrock Teaching Award, Apr. 2009, Indiana University
Glenn Schober Memorial Travel Award, Apr. 2009, Indiana University

IV. Research and Creative Activity

Publications

Monograph

[B1] **G.-M. Gie, M. Hamouda, C.-Y. Jung, and R. Temam**, *Singular perturbations and boundary layers*, Vol. 200 of *Applied Mathematical Sciences*. Springer Nature Switzerland AG, 2018 <https://doi.org/10.1007/978-3-030-00638-9>

Articles in Peer-Reviewed Journals

- [31] **G.-M. Gie, J. Kelliher, and A. Mazzucato**, Boundary layer analysis for viscous flows in a rectangular domain, *Preprint*
- [30] **T.-Y. Chang, G.-M. Gie, Y. Hong, and C.-Y. Jung**, Singular layer Physics Informed Neural Network method for Plane Parallel Flows, *Submitted*
- [29] **G.-M. Gie, Y. Hong, C.-Y. Jung, and Dongseok Lee**, Semi-analytic physics informed neural network for convection-dominated boundary layer problems in 2D, *Submitted*
- [28] **G.-M. Gie, Y. Hong, C.-Y. Jung, and Tselmuun Munkhjain**, Semi-analytic PINN methods for boundary layer problems in a rectangular domain, *Submitted*
- [27] **H.-H. Kim, G.-M. Gie, C.-Y. Jung, and Thien Binh Nguyen**, A staggered discontinuous Galerkin method for the Stokes problem on rectangular meshes, *Submitted*
- [26] **G.-M. Gie, Y. Hong, and C.-Y. Jung**, Semi-analytic PINN methods for singularly perturbed boundary value problems, *Submitted*
- [25] **G.-M. Gie, J. Kelliher, and A. Mazzucato**, The 3D Euler equations with inflow, outflow and vorticity boundary conditions, *Submitted*
- [24] **G.-M. Gie, J. Kelliher, and A. Mazzucato**, The linearized 3D Euler equations with inflow, out flow, *Advances in Differential Equations*, Volume 28, Number 5-6 (2023), 373-412
- [23] **G.-M. Gie, C.-Y. Jung, and H. Lee**, Semi-analytic shooting methods for Burgers' equation, *Journal of Computational and Applied Mathematics*, Vol. 418, 2023, 114694, ISSN 0377-0427, <https://doi.org/10.1016/j.cam.2022.114694>
- [22] **G.-M. Gie, C.-Y. Jung, and H. Lee**, Semi-analytic time differencing methods for singularly perturbed initial value problems, *Numerical Methods for Partial Differential Equations*, First published: 08 September 2021 <https://doi.org/10.1002/num.22839>
- [21] **G.-M. Gie, C.-Y. Jung, and H. Lee**, Enriched Finite Volume approximations of the plane-parallel flow at a small viscosity, *Journal of Scientific Computing*, 84, 7 (2020) <https://doi.org/10.1007/s10915-020-01259-0>
- [20] **G.-M. Gie, C.-Y. Jung, and T. B. Nguyen**, Validation of a 2D cell-centered Finite Volume method for elliptic equations, *Mathematics and Computers in Simulation*, Vol. 165, 2019, 119–138 <https://doi.org/10.1016/j.matcom.2019.03.008>
- [19] **G.-M. Gie and J. P. Whitehead**, Boundary layer analysis for Navier-Slip Rayleigh-Bénard convection: the non-existence of an ultimate state, *Journal of Mathematical Fluid Mechanics*, 2019 <https://doi.org/10.1007/s00021-018-0404-3>
- [18] **G.-M. Gie, J. Kelliher, M. Lopes Filho, A. Mazzucato, and H. Nussenzveig Lopes**, Vanishing viscosity limit of some symmetric flows, *Annales de l'Institut Henri Poincaré C, Analyse Non Linéaire*, Vol. 36, no. 5, 2019, 1237–1280 <https://doi.org/10.1016/j.anihpc.2018.11.006>
- [17] **G.-M. Gie, J. Kelliher, and A. Mazzucato**, Boundary layers for the Navier-Stokes equations linearized around a stationary Euler flow, *Journal of Mathematical Fluid Mechanics*, Vol. 20, no. 4, 2018, 1405–1426 <https://doi.org/10.1007/s00021-018-0371-8>
- [16] **E. Cozzi, G.-M. Gie, and J. P. Kelliher**, The aggregation equation with Newtonian po-

tential: the vanishing viscosity limit, *Journal of Mathematical Analysis and Applications*, Vol. 453, no. 2, 2017, 841–893

[15] **G.-M. Gie, A. Sboui, and M. Hamouda**, Asymptotic Analysis of the Stokes equations in a square at small viscosity, *Applicable Analysis*, Vol. 95, no. 12, 2016, 2683–2702

[14] **G.-M. Gie, C.-Y. Jung, and R. Temam**, Recent progresses in boundary layer theory, *Discrete and Continuous Dynamical Systems - Series A*, Vol. 36, no. 5, 2016, 2521–2583

[13] **G.-M. Gie, C. Henderson, G. Iyer, L. Kavlie, and J. P. Whitehead**, Stability of vortex solutions to an extended Navier-Stokes system, *Communications in Mathematical Sciences*, Vol. 14, no. 7, 2016, 1773–1797

[12] **G.-M. Gie and R. Temam**, Convergence of a cell-centered Finite Volume method and application to elliptic equations, *International Journal of Numerical Analysis and Modeling*, Vol. 12, no. 3, 2015, 536–566

[11] **A. Bousquet, G.-M. Gie, Y. Hong, and J. Laminie**, A higher order Finite Volume resolution method for a system related to the inviscid primitive equations in a complex domain, *Numerische Mathematik*, Vol. 128, no. 3, 2014, 431–461

[10] **G.-M. Gie**, Asymptotic expansion of the Stokes solutions at small viscosity: the case of non-compatible initial data, *Communications in Mathematical Sciences*, Vol. 12, no. 2, 2014, 383–400

[9] **G.-M. Gie and C.-Y. Jung**, Vorticity layers of the 2D Navier-Stokes equations with a slip type boundary condition, *Asymptotic Analysis*, Vol. 84, no. 1, 2013, 17–33

[8] **G.-M. Gie, C.-Y. Jung, and R. Temam**, Analysis of mixed elliptic and parabolic boundary layers with corners, *International Journal of Differential Equations, Special issue on Qualitative Analysis of Differential Equations*, Vol. 2013, Article ID 532987, 13 pages, 2013

[7] **G.-M. Gie, L. Song, and M.-C. Shiue**, Interior penalty discontinuous Galerkin methods with implicit time-integration techniques for nonlinear parabolic equations, *Numerical Methods for Partial Differential Equations*, Vol. 29, no. 4, 2013, 1341–1366

[6] **G.-M. Gie, M. Hamouda, and R. Temam**, Asymptotic analysis of the Navier-Stokes equations in a curved domain with a non-characteristic boundary, *Networks and Heterogeneous Media, Special issue in honor of Hiroshi Matano*, Vol. 7, no. 4, 2012, 741–766

[5] **G.-M. Gie and J. P. Kelliher**, Boundary layer analysis of the Navier-Stokes equations with generalized Navier boundary conditions, *Journal of Differential Equations*, Vol. 253, no. 6, 2012, 1862–1892

[4] **G.-M. Gie, M. Hamouda, and R. Temam**, Asymptotic analysis of the Stokes problem on general bounded domains: the case of a characteristic boundary, *Applicable Analysis*, Vol. 89, no. 1, 2010, 49–66

[3] **G.-M. Gie, M. Hamouda, and R. Temam**, Boundary layers in smooth curvilinear domains: parabolic problems, *Discrete and Continuous Dynamical Systems - Series A*, Vol. 26, no. 4, 2010, 1213–1240

[2] **G.-M. Gie and R. Temam**, Cell centered Finite Volume methods using Taylor Series Expansion Scheme without fictitious domains, *International Journal of Numerical Analysis and Modeling*, Vol. 7, no. 1, 2010, 1–29

[1] **G.-M. Gie**, Singular perturbation problems in a general smooth domain, *Asymptotic Analysis*, Vol. 62, no. 3–4, 2009, 227–249

Presentations at Scholarly Meetings

[59] Apr. 2023, Analysis and Applied Mathematics Seminar, Dept of Math, Stat, and Comp Sci, University of Illinois at Chicago, Chicago, IL

[58] Jan. 2023, AMS Special Session on Recent Developments in Numerical Methods for PDEs, Joint Mathematics Meetings, Boston, MA

- [57] Apr. 2022, Analysis Seminar, Oregon State University, Online
- [56] Mar. 2022, Minisymposium on Recent Developments on the Stability/Boundary Layer Analysis in Fluid Dynamics, SIAM Conference on Analysis of Partial Differential Equations, Online
- [55] Dec. 2021, Annual Meeting of the Korean Society for Industrial and Applied Mathematics , S. Korea
- [54] Nov. 2021, PDE Seminar, Korea Advanced Institute of Science and Technology , S. Korea
- [53] Nov. 2021, Workshop on Machine Learning, Sungkyunkwan university, S. Korea
- [52] Oct. 2021, Kyungpook National University – Ulsan National Institute of Science and Technology joint workshop on applied mathematics and PDE, Kyungpook National University, S. Korea
- [51] Sep. 2021, Analysis and PDE Seminar, Chinese University of Hong Kong – University of Hong Kong – Ulsan National Institute of Science and Technology
- [50] Jul. 2021, PDE Seminar, Seoul National University, S. Korea
- [49] Jul. 2021, Analysis Seminar, Kyungpook National University, S. Korea
- [48] Jul. 2021, Annual Meeting of the Honam Mathematical Society, S. Korea
- [47] Dec. 2020, Workshop on Machine Learning, Kyung Hee University, S. Korea
- [46] Oct. 2020, Special Session on Recent advances in the theory of fluid dynamics, AMS Fall Western Sectional Meeting, Online (formerly at University of Utah)
- [45] Jan. 2020, Departmental Colloquium, Department of Physics and Astronomy, University of Louisville, Louisville, KY
- [44] Nov. 2019, Special Session on Fluid Dynamics; from Theory to Numerics, AMS Fall Western Sectional Meeting, University of California, Riverside, Riverside, CA
- [43] Sep. 2019, Computational and Applied Mathematics Colloquium, Department of Mathematics, Penn State University, State College, PA
- [42] Jul. 2019, Analysis, PDE & Probability Seminar (3 lectures), School of Mathematics, Korea Institute for Advanced Study (KIAS), S. Korea
- [41] Jul. 2019, Fluid Mechanics Seminar, Department of Mathematics, Pohang University of Science and Technology (POSTECH), S. Korea
- [40] May 2019, PDE and Applied Math Seminar, Department of Mathematics, University of California, Riverside, Riverside, CA
- [39] Apr. 2019, Applied Math Seminar, Brigham Young University, Provo, UT
- [38] Oct. 2018, Departmental Colloquium, Department of Mathematics & Statistics, San Diego State University, San Diego, CA
- [37] May 2017, MTH BK21Plus Seminar, Department of Mathematical Sciences, Ulsan National Institute of Science and Technology (UNIST), S. Korea
- [36] May 2017, Partial Differential Equations Seminar, Department of Mathematical Sciences, Korea Advanced Institute of Science and Technology (KAIST), S. Korea
- [35] Oct. 2016, Partial Differential Equations and Geometric Analysis Seminar, Department of Mathematics, University of Wisconsin, Madison, WI
- [34] Jul. 2016, Special Session on Classical and geophysical fluid dynamics, The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL
- [33] May 2016, International Conference on Evolution Equations in conjunction with the 31st annual Shanks Lecture, Vanderbilt University, Nashville, TN
- [32] Mar. 2016, Applied Math Seminar, Brigham Young University, Provo, UT
- [31] Jan. 2016, Special Session on Equations of Fluid Motion, Joint Mathematics Meetings, Seattle, WA

- [30] Dec. 2015, Minisymposium on Analytical methods in fluid mechanics, SIAM Conference on Analysis of Partial Differential Equations, Scottsdale, AZ
- [29] Dec. 2015, Minisymposium on Recent Advances in Theoretical and Numerical Aero- and Hydrodynamics, SIAM Conference on Analysis of Partial Differential Equations, Scottsdale, AZ
- [28] Nov. 2015, Departmental Colloquium, Department of Physics and Astronomy, University of Louisville, Louisville, KY
- [27] Oct. 2015, Special Session on Stabilization, control, and analysis of evolutionary PDEs, AMS Southeastern Sectional Meeting, University of Memphis, Memphis, TN
- [26] Mar. 2015, Minisymposium on Mathematical and Physical Properties of Numerical Schemes for Complex Dynamical Systems, SIAM Conference on Computational Science and Engineering, Salt Lake City, UT
- [25] Nov. 2014, Special Session on Partial Differential Equations Related to Fluids, AMS Southeastern Sectional Meeting, University of North Carolina at Greensboro, Greensboro, NC
- [24] Jul. 2014, Minisymposium on Advances in the Analysis and Computation of Fluid Problems, SIAM Annual Meeting, Chicago, IL
- [23] Apr. 2014, Hyperbolic and Mixed Type PDEs Seminar, Penn State Univ., State College, PA
- [22] Feb. 2014, Applied Mathematics Colloquium, University of Maryland, Baltimore County, Baltimore, MD
- [21] Feb. 2014, Departmental Colloquium, Oklahoma State University, Stillwater, OK
- [20] Feb. 2014, Departmental Colloquium, University of Louisville, Louisville, KY
- [19] Feb. 2014, Departmental Colloquium, University of Nebraska–Lincoln, Lincoln, NE
- [18] Jan. 2014, Computer Science and Mathematics Division Seminar, Oak Ridge National Laboratory, Oak Ridge, TN
- [17] Jan. 2014, Special Session on Regularity Problems for Nonlinear Partial Differential Equations Modeling Fluids and Complex Fluids, Joint Mathematics Meetings, Baltimore, MD
- [16] Dec. 2013, Minisymposium on Fluid Dynamic Equations: Existence and Asymptotic Between Theory and Numerics, SIAM Conference on Analysis of Partial Differential Equations, Lake Buena Vista, FL
- [15] Oct. 2013, Special Session on Partial Differential Equations from Fluid Mechanics, AMS Southeastern Sectional Meeting, University of Louisville, Louisville, KY
- [14] Aug. 2013, Symposium C, US-KOREA Conference 2013, New York, NY
- [13] Jun. 2013, Regularity Problems for Nonlinear Partial Differential Equations Modeling Fluids and Complex Fluids, Mathematics Research Communities, Snowbird Resort, UT
- [12] Oct. 2012, Special Session on Mathematical Fluid Dynamics and its Application in Geosciences, AMS Western Sectional Meeting, University of Arizona, Tucson, AZ
- [11] Sep. 2012, Departmental Colloquium, California State University, Long Beach, Long Beach, CA
- [10] Jul. 2012, Special Session on Singular Perturbations and Boundary Layer Theory, The 9th AIMS Conference on Dynamical Systems, Differential Equations, and Applications, Orlando, FL
- [9] Mar. 2012, Nonlinear PDEs seminar, University of California, Irvine, Irvine, CA
- [8] Feb. 2012, Departmental Colloquium, Oakland University, Rochester, MI
- [7] Nov. 2011, SIAM Conference on Analysis of Partial Differential Equations, San Diego, CA
- [6] Jul. 2011, PDE Seminar, Korea University, Seoul, Korea
- [5] Jul. 2011, Departmental Colloquium, Chung-Ang University, Seoul, Korea
- [4] Jun. 2011, 3rd Workshop on Fluids and PDE, UNICAMP, Campinas, Brazil

- [3] Mar. 2011, Special Session on Nonlinear Analysis of Partial Differential Equations, AMS Southeastern Section Meeting, Georgia Southern University, Statesboro, GA
- [2] Jan. 2011, Special Session on Asymptotic Methods in Analysis with Applications, AMS Joint Meeting, New Orleans, LA
- [1] Dec. 2010, Special Session on Partial Differential Equations from Fluid Mechanics, The 7th International Conference on Differential Equations and Dynamical Systems, University of South Florida, Tampa, FL

Recent Workshops attended

Oct. 2023, 5 Day Workshop at BIRS, Fluid Equations, A Paradigm for Complexity: Regularity vs Blow-up, Deterministic vs Stochastic (23w5040), Banff, Canada

V. Teaching

University of Louisville

M105 – Contemporary Mathematics, Fall 2015, Fall 2017, Fall 2023
 M107 – Finite Mathematics, Spring 2016
 M111 – College Algebra, Spring 2022, Spring 2023
 M180 – Elements of Calculus, Fall 2019, Spring 2020, Fall 2020
 M190 – Precalculus, Fall 2014, Spring 2015, Fall 2016, Fall 2018, Spring 2019, Summer 2020
 M205 – Calculus I, Spring 2017, Fall 2018, Spring 2019, Fall 2019
 M206 – Calculus II, Spring 2018
 M301 – Calculus III, Fall 2014, Spring 2018, Fall 2023
 M325 – Introduction to Linear Algebra, Spring 2020, Spring 2022, Spring 2023
 M501 – Introduction to Analysis I, Fall 2015, Fall 2020
 M502 – Introduction to Analysis II, Spring 2016
 M591 – Selected Topics in Computational Fluid Mechanics, Fall 2017
 M591 – Introduction to Machine Learning, Fall 2022
 M601 – Real Analysis I, Fall 2016
 M602 – Real Analysis II, Spring 2017

Indiana University

M014 – Basic Algebra, Fall 2007
 M027 – Precalculus with Trigonometry, Fall 2008
 M118 – Finite Mathematics, Fall 2013
 M343 – Introduction to Differential Equations with Applications I, Summer 2014
 A641 – Elliptic Differential Equations, Spring 2014

University of California, Riverside

M008B – Introduction to College Mathematics for the Sciences, Winter 2011 and Fall 2010
 M009A – First-Year Calculus I, Fall 2012, Fall 2011, and Fall 2010
 M009B – First-Year Calculus II, Winter 2013, Spring 2012, and Winter 2012
 M009C – First-Year Calculus III, Winter 2012
 M010A – Calculus of Several Variables I, Winter 2011
 M010B – Calculus of Several Variables II, Spring 2013, Winter 2013, and Spring 2011
 M113 – Applied Linear Algebra, Spring 2013
 M132 – Linear Algebra II, Spring 2012
 M149A – Probability and Mathematical Statistics I, Fall 2011

Graduate Student Committee

Muhammad Naeem– Ph.D. in Applied and Industrial Mathematics, Advisor: Dr. Gung-Min Gie, 2023 – Current

Teng-Yuan Chang– Ph.D. in Applied Mathematics, National Yang Ming Chiao Tung University, Advisor: Dr. Ming-Cheng Shiue and Dr. Gung-Min Gie, 2023 – Current

Sujeewa Hapuarachchi – Ph.D. in Applied and Industrial Mathematics, Advisor: Dr. Steve Xu, graduated in 2017

Heng Li – Ph.D. in Applied and Industrial Mathematics, Advisor: Dr. Steve Xu, graduated in 2017

Garrett Otto – Ph.D. in Applied and Industrial Mathematics, Advisor: Dr. Bingtuan Li, graduated in 2018

Timothy Pervenecki – Ph.D. in Applied and Industrial Mathematics, Advisor: Dr. Bingtuan Li, graduated in 2019

Jice Zeng – Ph.D. in Civil Engineering, co-Advisor: Dr. Young Hoon Kim, graduated in 2021

VI. Service

Service at University of Louisville

General education assessment committee, Fall 2015

Search committee for a tenure-track faculty position in Statistics, Fall 2015 – Spring 2016

Search committee for a term-faculty position, Summer 2015, Spring 2023, Fall 2023

Co-organizer on Differential equations and applied mathematics seminar, Fall 2015 – present

Colloquium committee, Fall 2016 – Spring 2017 (Chair)

Analysis Qualifying Exam Committee, Fall 2017, Fall 2019 – Fall 2020, Fall 2021, Spring 2022 (Chair in Fall 2019 and Fall 2021)

Committee on Graduate Study, Fall 2019 – Spring 2021

College of A&S Research committee, Fall 2016 – Spring 2019

Curriculum committee, Spring 2023

Service to the Professional Community

Co-organizer, 2022, Minisymposium on Recent Developments on the Stability/Boundary Layer Analysis in Fluid Dynamics, SIAM Conference on Analysis of Partial Differential Equations, Online

Co-organizer, 2019, Minisymposium on Recent developments on analysis and computations in fluid dynamics, SIAM Conference on Analysis of Partial Differential Equations, La Quinta, CA

Co-organizer, 2017, Special Session on Analysis and Numerical Computations of PDEs in Fluid Mechanics, AMS Central Sectional Meeting, Indiana University, Bloomington, IN

Co-organizer, 2015, Minisymposium on Analytical methods in fluid mechanics, SIAM Conference on Analysis of Partial Differential Equations, Scottsdale, AZ

Co-organizer, 2015, Minisymposium on Singular perturbations and boundary layer–theory and numerical aspects, SIAM Conference on Analysis of Partial Differential Equations, Scottsdale, AZ

Co-organizer, 2015, Minisymposium on Mathematical and Physical Properties of Numerical Schemes for Complex Dynamical Systems, SIAM Conference on Computational Science and Engineering, Salt Lake City, UT

Co-organizer, 2013, Special Session on Fluids and Boundaries, AMS Western Sectional Meeting, University of California, Riverside, Riverside, CA

Group leader helping the organizers in Mathematics Research Communities (MRC) program on Regularity Problems for Nonlinear Partial Differential Equations Modeling Fluids and Complex Fluids,

Snowbird Resort, UT

Associate Editor in Applicable Analysis

Reviewer for Collaboration Grant for Mathematicians, Simons Foundation, 2020

Reviewer for AMS Mathematical Reviews

Refereed Articles for Publication in Peer-Reviewed Journals

Applicable Analysis, Applied Numerical Mathematics, Asymptotic Analysis, Boundary Value Problems, Central European Journal of Mathematics, Discrete and Continuous Dynamical Systems - Series A, Indiana University Mathematics Journal, International Journal of Computer Mathematics, Journal of Mathematical Analysis and Applications, Journal of Mathematical Fluid Mechanics, Journal of Mathematical Physics, Journal of Partial Differential Equations, Mathematical Methods in the Applied Sciences, Nonlinear Analysis Series A: Theory, Methods & Applications, Nonlinearity, Numerical Methods for Partial Differential Equations, Numerische Mathematik, Physica D, and SIAM Journal on Mathematical Analysis.