

LOIC CAPPANERA

Department of Mathematics and Statistics
University of Ottawa
Ottawa, ON K1N 6N5

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EMPLOYMENT & EDUCATION

Associate Professor, University of Ottawa, ON, Canada	2026 - Present
Associate Professor, University of Houston, TX, USA	2025 - 2026
Assistant Professor, University of Houston, TX, USA	2019 - 2025
Postdoctoral Research Associate, Rice University, Houston, TX, USA	2017 - 2019
Postdoctoral Research Associate, Texas A&M University, College Station, TX, USA	2016 - 2016
Ph.D. Fluid Mechanics, Paris-Saclay University, Orsay, France	2012 - 2015
M.S. Mathematics, Paris-Sud University, Orsay, France	2008 - 2012
French Agregation in Mathematics, ENS Cachan, Cachan, France	2010 - 2011
B.S. Mathematics, Paris-Sud University, Orsay, France	2005 - 2008

RESEARCH INTERESTS

Finite Element Methods. Incompressible Navier-Stokes equations. Maxwell equations. Multiphase flows and Level Set Methods. Flows in porous media. Integro-Differential Equations. Applications to Turbulence, Thermal Convection, and Magnetohydrodynamics.

BIBLIOGRAPHIC AND SOFTWARE DATABASE

Bibliographic databases.

- [Google Scholar Profile](#)
- [ResearchGate Profile](#)
- ORCID: [0000-0002-3871-1073](#)

Open source MHD-code SFEMaNS.

- <https://github.com/jean-luc-guermond/SFEMaNS>

GRANTS

Invited Professor (Missionnaires Invités) at Paris-Saclay University (\$3, 654)
Collaborative research on turbulent thermal convection in multiphase flows.

June 2026

NSF DMS-2430460 (\$42,244)

2025 - 2026

PI: Yunhui He.

Co-PIs: Loic Cappanera, Andreas Mang, Min Wang.

CBMS Conference: Research at the Interface of Applied Mathematics and Machine Learning.

NSF DMS-2208046 (\$170,913)

2022 - 2025

PI: Loic Cappanera.

Numerical methods for incompressible multiphase flows applied to magnetohydrodynamics.

Invited Professor (Missionnaires Invités) at Paris-Saclay University (\$3, 654)

June 2023

Collaborative research on magnetohydrodynamics instabilities in liquid metal batteries.

PUBLICATIONS

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28. L. Cappanera, G. Jaramillo, J. M. Siktár, *A Mountain-Pass Algorithm for Nonlocal Problems with Super-quadratic Nonlinearities*, submitted.
 27. L. Cappanera, G. Jaramillo, *The role of boundary constraints in simulating a nonlocal Gray-Scott model*, submitted.
 26. V. Botez, A. Giesecke, C. Nore, L. Cappanera, F. Stefani, *Impact of boundary conditions on onset and symmetry of precession-driven dynamos*, Phys. Rev. Lett. 11.8 (2026), DOI: 10.1103/rx1h-5zxp
 25. L. Cappanera, S. Giordano, *Artificial compressibility method for the incompressible Navier-Stokes equations with variable density*, Numerical Methods for Partial Differential Equations 41.5 (2025), DOI: 10.1002/num.70033
 24. A. Vu, L. Cappanera, *Stability and error analysis of a semi-implicit scheme for incompressible flows with variable density and viscosity*, Journal of Numerical Mathematics 33.2 (2025), 161-186, DOI: 0.1515/jnma-2024-0033
 23. G. Jaramillo, L. Cappanera, C. Ward, *Analysis and Simulation of a Nonlocal Gray-Scott model*, SIAM Journal on Applied Mathematics 84.3 (2024), 856-889, DOI: 10.1137/22M1542441
 22. S. Bénard, L. Cappanera, W. Herreman, C. Nore, *Magnetic field based finite element method for magneto-static problems with discontinuous electric potential distributions*, Comptes Rendus. Mécanique, 351.S1 (2023): 1-20, DOI: 10.5802/crmeca.184
 21. W. Herreman, L. Wierchalek, G. M. Horstmann, L. Cappanera and C. Nore, *Stability theory for metal pad roll in cylindrical liquid metal batteries*, Journal of Fluid Mechanics, 962 (2023): A6, DOI: <https://doi.org/10.1017/jfm.2023.238>
 20. G. Sosa Jones, B. Riviere, L. Cappanera, *Existence and convergence of a discontinuous Galerkin method for the compressible three-phase flow problem in porous media*, IMA Journal of Numerical Analysis (2022) 00, 1–34 , DOI: <https://doi.org/10.1093/imanum/drac053>
 19. V. Girault, B. Riviere, L. Cappanera, *A Finite element method for degenerate two-phase flow in porous media. Part II: convergence*, Journal of Numerical Mathematics, 29 (2021). DOI: 10.1515/jnma-2020-0005
 18. G. Jaramillo, L. Cappanera, C. Ward, *Numerical Methods for a Diffusive Class Nonlocal Operators*, J Sci Comput, 88, 30 (2021), DOI: <https://doi.org/10.1007/s10915-021-01543-7>
 17. W. Herreman, C. Nore, L. Cappanera, J.-L. Guermond, *Efficient mixing by swirling electrovortex flows in liquid metal batteries*, Journal of Fluid Mechanics, 915 (2021) A17, DOI: <https://doi.org/10.1017/jfm.2021.79>

16. H. Faller, D. Geneste, T. Chaabo, A. Cheminet, V. Valori, Y. Ostovan, L. Cappanera, Ch. Cuvier, F. Daviaud, J.-M. Foucaut, J.-L. Guermond, J.-Ph. Laval, C. Nore, V. Padilla, C. Wiertel-Gasquet and B. Dubrulle, *On the nature of intermittency in a turbulent von Karman flow*, Journal of Fluid Mechanics, 914 (2021) A2, DOI: <https://doi.org/10.1017/jfm.2020.908>
15. C. Nore, L. Cappanera, J.-L. Guermond, T. Weier, W. Herreman, *Feasibility of metal pad roll instability experiments at room temperature*, Phys. Rev. Lett., 126 (2021), 184501, DOI: <https://doi.org/10.1103/PhysRevLett.126.184501>
14. V. Girault, B. Riviere, L. Cappanera, *A Finite element method for degenerate two-phase flow in porous media. Part I: well-posedness*, Journal of Numerical Mathematics, 29 (2021). DOI: 10.1515/jnma-2020-0004
13. L. Cappanera, P. Debue, H. Faller, D. Kuzzay, E-W. Saw, C. Nore, J.-L. Guermond, F. Daviaud, C. Wiertel-Gasquet, B. Dubrulle, *Turbulence in realistic geometries with moving boundaries: when simulations meet experiments*, Computer & Fluids, 214 (2021): 104750, DOI: 10.1016/j.compfluid.2020.104750
12. W. Herreman, S. Benard, C. Nore, P. Personnetaz, L. Cappanera, J.-L. Guermond, *Solutal buoyancy and electrovortex flow in liquid metal batteries*, Physical Review Fluids, 5 (2020), DOI: 10.1103/PhysRevFluids.5.074501
11. W. Herreman, C. Nore, J.-L. Guermond, L. Cappanera, N. Weber, G. M. Horstmann, *Metal pad roll instability in cylindrical reduction cells*, Journal of Fluid Mechanics, 878 (2019) 598-646, DOI: 10.1017/jfm.2019.642
10. W. Herreman, C. Nore, P. Ziebell Ramos, L. Cappanera, J.-L. Guermond, *Numerical simulation of electro-vortex flows in cylindrical fluid layers and liquid metal batteries*, Physical Review Fluids, 4 (2019), DOI: 10.1103/PhysRevFluids.4.113702
9. L. Cappanera, B. Riviere, *Flexible Discretizations of the Three-Component Three-Phase Flow Problem*, Society of Petroleum Engineers Reservoir Simulation Conference proceedings (2019), DOI: 10.2118/193906-ms
8. L. Cappanera and B. Riviere, *Discontinuous Galerkin method for solving the black oil problem in porous media*, Numer Methods Partial Differential Eq. (2018) 1-29, DOI:10.1002/num.22324
7. C. Nore, D. Castanon Quiroz, L. Cappanera and J.-L. Guermond, *Numerical simulation of the Von-Karman-Sodium experiment*, Journal of Fluid Mechanics, 854, (2018) 164-195, DOI:10.1017/jfm.2018.582
6. L. Cappanera, J.-L. Guermond, W. Herreman, C. Nore, *Momentum based approximation of incompressible multiphase fluid flows*, Int. J. Numer. Meth. Fluids, 86 (2018) 541–563, DOI: 10.1002/fld.4467
5. R. Zanella, C. Nore, F. Bouillault, L. Cappanera, I. Tomas, X. Mininger and J.-L. Guermond, *Study of Magnetoconvection Impact on a Coil Cooling by Ferrofluid with a Spectral / Finite Element Method*, IEEE Transactions on Magnetics, 54:3 (2018) 460014, DOI: 10.1109/TMAG.2017.2749539
4. C. Nore, D. Castanon Quiroz, L. Cappanera and J.-L. Guermond, *Direct numerical simulation of the axial dipolar dynamo in the Von-Karman-Sodium experiment*, Euro. Phys. Letters, 114 (2016) 65002, DOI:10.1209/0295-5075/114/65002
3. L. Cappanera, J.-L. Guermond, J. Léorat , C. Nore, *Two spinning ways for precession dynamo*, Physical Review E, 93 (2016) 043113, L. Cappanera, J.-L. Guermond, J. Léorat, C. Nore, "Two spinning ways for precession dynamo", Physical Review E, 93 (2016) 043113, DOI: 10.1103/physreve.93.043113

2. W. Herreman, C. Nore, L. Cappanera, J.-L. Guermond, *Taylor instability in liquid metal columns and liquid metal batteries*, Journal of Fluid Mechanics, 771 (2015) 79-114, DOI: 10.1017/jfm.2015.159
1. C. Nore, J. Léorat, J. L. Guermond, L. Cappanera, F. Luddens, *Dynamo action in precessing cylinders*, 9th PAMIR International Conference proceedings, Fundamental and Applied MHD (2014), HAL Id: hal-01998770

INVITED TALKS

- 2026** *TBA*. Applied Mathematics and Computation Seminar, Department of Mathematics, Oregon State University, OR (online, 2026/11/13).
- 2025** *Numerical Methods for Incompressible Flows with Variable Density. Analysis and Applications*. Colloquium, Department of Mathematics and Statistics, University of Ottawa, Ottawa, CN (2025/12/12).
- 2025** *Robust Discretization for Incompressible Multiphase Flows: Analysis and Applications*. Applied Mathematics Seminar, Department of Mathematics, University of Arkansas, Fayetteville, AR (online, 2025/02/18)
- 2024** *Partial Differential Equations with Nonlocal Diffusive Operators: Modeling and Approximation*. Continuum Mechanics Seminar, University of Nebraska-Lincoln, Lincoln, NE (online, 2024/11/17).
- 2024** *Partial Differential Equations with Nonlocal Diffusive Operators: Modeling and Approximation*. NASC seminar, Rice University, Houston, TX (09/24/2024).
- 2023** *Efficient and Robust Pseudo-Spectral Methods for Incompressible Flows with Variable Density*. Computational and Applied Mathematics Seminar, University of Tennessee, Knoxville, TN (2023/10/17).
- 2023** *Numerical Methods for Incompressible Navier-Stokes Equations with Variable Density*. CMAI Colloquium, George Mason University, Fairfax, VA (2023/10/06).
- 2023** *Projection and Artificial Compressibility Methods for Incompressible Flows with Variable Density*. Numerical analysis and PDEs seminar, Math. Dept. University Paris-Saclay, Orsay, France (2023/06/08).
- 2023** *Efficient Numerical Methods for Incompressible Multiphase Flows and Applications to Magnetohydrodynamics*. Scientific Computing Seminar, Math. Dpt. University of Houston, Houston, TX (2023/04/06).
- 2023** *Pseudo-Spectral Methods for Incompressible Flows with Variable Density*. Applied Mathematics Seminar, Math. Dpt. Texas Tech University (online, 2023/03/28).
- 2023** *Robust and Efficient Numerical Methods for Incompressible Flows with Variable Density*. Colloquium, Math. Dept Oakland University, Rochester, MI (2023/03/14).
- 2022** *Robust Numerical Methods for Incompressible Flows with Variable Density*. Numerical Analysis seminar, Math. Dept. TAMU, College Station, TX (2022/09/28).
- 2018** *Nonlinear Stabilization of the Magnetohydrodynamics Equations. Applications to Multiphase Flow*. Scientific Computing Seminar, University of Houston, Houston, TX (2018/10/04).
- 2017** *Nonlinear Stabilization of Magnetohydrodynamics Equations. Applications to Multiphase Flow*. CAAM Colloquium, Rice University, Houston, TX (2017/11/09).

CONTRIBUTED TALKS

- 2026** *Numerical Approximation of Incompressible Multiphase Flows with Pseudo Spectral Methods.* Journee Ecoulement & Fluides, Paris-Saclay University, France (2026/06/22-23).
- 2026** *Artificial Compressibility Method for Incompressible Multiphase Flows.* 10th Coastal Bend Mathematics & Statistics Conference, TAMUCC, Corpus Cristi, TX (2026/04/18).
- 2025** *Numerical Methods for Incompressible Two-Phase Flows with Thermal Convection and Surface Tension.* 8th SIAM Texas-Louisiana Sectional Meeting, Austin, TX (2025/09/26-28).
- 2025** *Artificial Compressibility Techniques for Multiphase Flow with Applications to Turbulent Thermal Convection.* Coupled Problems 2025, Villasimius, Italy (2025/05/25-28).
- 2025** *Robust Discretization for Incompressible Fluids with Variable Density and Applications to Turbulent Thermal Convection.* SIAM CSE 2025, Fort Worth, TX (2025/03/03-07).
- 2025** *On the Modeling and Approximation of a Gray-Scott Model with Nonlocal Diffusion.* Firedrake USA 2025 workshop, Waco, TX (2025/02/28-2025/03/01).
- 2024** *Magnetic Field Based Discretization for Problems with Discontinuous Electric Potential. Applications to Liquid Metal Batteries.* 7th SIAM Texas-Louisiana Sectional Meeting, Waco, TX (2024/10/11-13)
- 2024** *Numerical Methods for Immiscible Incompressible Multiphase Flows with Thermal Convection.* WCCM-PANACM, Vancouver, Canada (2024/07/21-26).
- 2024** *Analysis and Numerical Simulations of a Nonlocal Gray-Scott Model.* Finite Element Rodeo, Rice University, Houston (2024/03/08-09).
- 2023** *Towards Higher Order Methods for Incompressible Navier-Stokes Equations with Variable Density.* 6th SIAM Texas-Louisiana Sectional Meeting, Lafayette, LA (2023/11/03-05).
- 2023** *Pseudo-Spectral Methods for Incompressible Two-Phase Flows with Temperature and Magnetic Effects.* AMS Fall Eastern Sectional Meeting, Buffalo, NY (2023/09/09-10).
- 2023** *Discontinuous Galerkin Method for Three-Phase Flows in Porous Media.* USNCCM 17, Albuquerque, NM (2023/07/23-27).
- 2023** *Numerical Methods for Incompressible Flows with Variable Density and Applications to Liquid Metal Batteries.* Math 2 Product (M2P) conference, Taormina, Sicily, Italy (2023/05/30-06/01).
- 2023** *Numerical Methods for Multiphase Flows with Discontinuous Electric Potential Distributions.* AMS Spring Central Meeting Section, Cincinnati, OH (2023/04/15-16).
- 2023** *Finite Element Methods for Magneto-Static Problems with Discontinuous Electric Potential Distribution.* Finite element Rodeo, TAMU, College Station, TX (2023/03/24/25).
- 2023** (canceled) *Robust Numerical Methods for the Incompressible Navier-Stokes Equations with Variable Density.* SIAM CSE, Amsterdam, Netherlands (2023/02/26-2023/03/03)
- 2022** *Pseudo-Spectral Methods for the Incompressible Magnetohydrodynamics Equations with Variable Density.* 5th SIAM TX-LA Annual Meeting, Houston, TX (2022/11/04-06).

- 2022** *Artificial Compressibility and Splitting Methods for the Incompressible Navier-Stokes Equations with Variable Density*. AMS Fall Central Meeting Section, El Paso, TX (2022/09/17).
- 2022** *Artificial Compressibility and Projection Methods for Incompressible Multiphase Flows*. 6th Coastal Bend Mathematics & Statistics Conference CBMSC (online, 2022/04/09).
- 2022** *Projection and Artificial Compression Methods for Incompressible Multiphase Flows*. Finite Element Rodeo, Southern Methodist University, Dallas, TX (2022/03/04-05).
- 2021** *Projection and Artificial Compression Methods for Incompressible Multiphase Flows*. 4th SIAM TX-LA Annual Meeting, UTRGV, South Padre Island, TX (2021/11/05-07).
- 2021** *Discontinuous Galerkin Method for Black Oil Problem: Convergence and Applications*. SIAM SEAS 2021, Auburn University, Auburn, AL (online, 2021/09/18-19).
- 2021** *Discontinuous Galerkin Discretization of the Three-Component Three-Phase Flow Problem*. WCCM-ECCOMAS Congress (online, 2021/01/11-15).
- 2020** *Momentum Based Approximation of Incompressible Flows with Variable Density and Viscosity*. 3rd SIAM TX-LA Annual Meeting (online, 2020/10/18).
- 2020** *Momentum Based Approximation of Incompressible Flows with Variable Density and Viscosity. Application to Magnetohydrodynamics*. AMS Fall Central Meeting (online, 2020/09/12).
- 2020** (symposium/talk canceled due to pandemic) *Momentum based approximation of multiphase flows and magnetohydrodynamics problems*. SIAM Annual Meeting.
- 2019** *Flexible Discretizations of the Three-component Three-phase Flow Problem*. SPE Reservoir Simulation Conference Galveston, TX (2019/04/10).
- 2019** *Discontinuous Galerkin method for solving the black oil problem in porous media*. SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS19), Houston, TX (2019/03/14).
- 2018** *Discontinuous Galerkin Method for Solving the Black Oil Problem in Porous Media*. Finite Element Circus, University of Delaware, Newark, DE (2018/11/09-10).
- 2018** *Approximation of porous media flow. Black Oil Model*. Finite Element Rodeo, Louisiana State University, Baton-Rouge, LA (2018/02/23-24).
- 2017** *Momentum Based Approximation of Incompressible Multiphase Flows and Applications to Metal Pad Roll Instability*. International Symposium on Bifurcations and Instabilities in Fluid Dynamics (BIFD), The Woodlands, TX (2017/07/11-14).
- 2016** *Momentum Based Approximation of Incompressible Multiphase Flow*. Finite Element Rodeo, College Station, TX (2016/03/04-05).
- 2015** *Momentum Based Approximations of Incompressible Multiphase Flows Bifurcations and Instabilities in Fluid Dynamics (BIFD)*, Paris, France (2015/07/15).
- 2015** *Momentum based approximation of incompressible multiphase flows with SFEMaNS MHD-code*. Journée de Dynamique des Fluides du Plateau d'Orsay (JDFFP), Orsay, France (2015/03/24).
- 2014** *Multiphase Flow Computations with SFEMaNS-MHD Code*. Journée de Dynamique des Fluides du Plateau d'Orsay (JDFFP), Orsay, France (2014/02/11).
- 2014** *Multiphase flow computations with SFEMaNS-MHD code*. European GDR Dynamo, Cambridge, England (2014/09/01-04).

POSTER

- 2015** *Momentum-based approximation of incompressible multiphase fluid flows.* Rencontre du Non Linéaire (RNL), Paris, France (03/2015).
- 2014** *Multiphase flow computations with SFEMaNS-MHD code.* Colloque Alain Bouyssy, Orsay, France (02/2014).
Awarded with Best Poster.

MENTORING

Postdoctoral Research Associate

- Giselle Sosa Jones (Fall 2020-Summer 2022)
Topics: Discontinuous Galerkin finite element methods for multiphase flows in highly heterogeneous media.
Current position: Assistant Professor, Department of Mathematics and Statistics, Oakland University, Rochester, MI.

Graduate Students

- Salvatore Giordano (Fall 2023-Spring 2026)
Topics: Artificial compressibility techniques for incompressible Navier-Stokes equations with variable density.
- Mark Simmons (Fall 2023-Spring 2026)
Topics: High-order Discontinuous Galerkin finite element methods for flows in porous media with mass transfer effect.
- An Vu (Fall 2021-Summer 2024)
Topics: Projection methods for incompressible Navier-Stokes equations with variable density and turbulent thermal convection.
Current position: Assistant Professor, Department of Mathematics, University of St. Thomas, Houston, TX (starting date: Fall 2024).

Master Students

- Taylor Ennadi (Fall 2024-Spring 2025).
Topics: Finite Element Methods for incompressible multiphase flows and applications to turbulent thermal convection.

Undergraduate Students

- Kaya Rende (Spring 2025)
Topics: Introduction to Finite Element methods with applications to the approximation of the Navier-Stokes equations.
- Walker Bordovsky (Fall 2024)
Topics: Introduction to Finite Element methods and applications to computational fluid dynamics.
- Quoc Nguyen (Summer 2022, ~4 weeks)
Topics: Introduction to Finite Element methods and FreeFEM++ software.
Current position: Graduate Student, Department of Mathematics, University of Houston.

TEACHING EXPERIENCE

University of Houston

MATH 6397: Computational science with C++	Sp-2026
MATH 6374: Numerical PDEs	Fa-2025
MATH 6371: Numerical Analysis II	Sp-2024
MATH 6370: Numerical Analysis I	Fa-2023
MATH 4377-6308: Advanced Linear Algebra I	Sp-2021
MATH 4364: Intro to Numerical Analysis in Scientific Computing	Sp-2023, Sp-2026
MATH 4335: Partial Diff Equations I	Fa-2021, Fa-2025
MATH 3363: Intro to PDEs	Fa-2022, Sp-2022, Fa-2020
MATH 2318: Linear Algebra	Sp-2024, Fa-2022
MATH 2305: Discrete Mathematics	Sp-2025
MATH 1451: Accelerated Calculus II	Sp-2020
MATH 1450: Accelerated Calculus I	Fa-2019

Rice University

CAAM 519: Computational Science I	Fa-2018, Fa-2017
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IUT Paris-Saclay University

General Mathematics (Calculus, ODEs)	Sp-2015, Sp-2014, Fa-2012
Computer Science (Excel, PowerPoint, Statistics)	Sp-2015, Sp-2014, Fa-2012
Graph Theory	Sp-2014

SERVICE

University of Houston Committees:

- Tenure Track Annual Performance Review Committee, Fall 2025-present.
- Chair of Colloquium Committee, Fall 2024 - present.
- Scientific Computing Seminar Committee, Fall 2023 - present.
- Graduate Studies Committee, Fall 2022 - present.
- Colloquium Committee, Spring 2021 - present
- Numerical Analysis Hiring Committee (open rank), Fall 2023 - Spring 2024.

PhD Thesis Committees:

- 2026 Md Hamran Hossan Mojamber (adviser: Ilya Timofeyev)
- 2026 Mark Simmons (adviser: Loïc Cappanera)
- 2026 Salvatore Giordano (adviser: Loïc Cappanera)
- 2025 Cristian Meraz (adviser: Gabriela Jaramillo)

2025 Lander Besabe (adviser: Annalisa Quaini)

2024 An Vu (adviser: Loïc Cappanera)

2023 Manoj Subedi (adviser: Krešimir Josić)

2022 Thuyen Dang (adviser: Yuliya Gorb)

Organization of Conferences:

2025 Member of the organizing committee (chair: Yunhui He) of the **CBMS Conference - Research at the Interface of Applied Mathematics and Machine Learning**, Houston TX, 2025/12/08-12.

2022 Member of the local organizing committee (chair: William Ott) of the **5th SIAM TX-LA Annual Meeting**, Houston TX, 2022/11/04-06.

Organization of Minisymposia & Workshops:

2025 Co-organizer (w/ Giselle Saylor) of IACM minisymposium, *Recent Advances in Finite Element Methods for Coupled Problems in Incompressible Fluid Dynamics*, **Coupled Problems 2025**, Villasimius, Sardinia, Italy, 2025/05/25-28.

2024 Co-organizer (w/ Yunhui He) of SIAM minisymposium, *Advances in numerical methods for non-linear PDES using finite element*, **7th SIAM TX LA annual meeting**, Waco TX, 2024/10/11-13.

2024 Co-organizer (w/ Gabriela Jaramillo) of SIAM minisymposium, *Nonlocal equations: analysis, simulation, and applications*, **7th SIAM TX LA annual meeting**, Waco TX, 2024/10/11-13.

2024 Co-organizer (w/ Keegan Kirk and Giselle Sosa Jones) of WCCM minisymposium, *Recent Advances in discretization techniques for Coupled Problems in Incompressible Fluid Dynamics*, **WCCM-PANACM 2024**, Vancouver, Canada, 2024/07/21-26.

2023 Co-organizer (w/ Tamas Horvath and Giselle Sosa Jones) of USNCCM minisymposium, *Recent Advances in FE Methods for Coupled Problems in Incompressible Fluid Dynamics*, **USNCCM 17**, Albuquerque NM, 2023/07/23-27.

2023 Co-organizer (w/ Tamas Horvath) of SIAM minisymposium, *Robust finite element methods for convection-diffusion problems*, **SIAM CSE 23**, Amsterdam, Netherlands, 2023/02/26-2023/03/03

2022 Co-organizer (w/ Giselle Sosa Jones) of SIAM minisymposium, *Numerical methods and applications for geosciences*, **5th SIAM TX-LA Annual Meeting**, Houston TX, 2022/11/04-06.

2021 Organizer of SIAM minisymposium, *Numerical methods for multi-phase flows in porous media*, **4th SIAM TX-LA Annual Meeting**, University of Texas Rio Grande Valley, South Padre Island, TX, 2021/11/05-07.

Editorial Board:

- Editorial Board Member for Numerical Methods for Partial Differential Equations journal since 2026.

Reviewer for Journals:

- **AMS** - MathSciNet
- **CAMWA** - Computers & Mathematics with Applications

- **CMAM** - Computational Methods in Applied Mathematics
- **CMAME** - Computer Methods in Applied Mechanics and Engineering
- **IMJNA** - IMA Journal of of Numerical Analysis
- **JMAA** - Journal of Mathematical Analysis and Applications
- **JNNA** Journal of Numerical Mathematics
- **JOMP** - Springer Journal of Scientific Computing
- **MCOM** - AMS Mathematics of Computation
- **NACO** - Numerical Algebra, Control and Optimization
- **NMPDE** - Numerical Methods for Partial Differential Equations
- **SINUM** - SIAM Journal on Numerical Analysis
- **SISC** - SIAM Journal on Scientific Computing
- **Springer Nature** - Nature Physics