Anna L. Mazzucato

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EDUCATION

2000 **PhD, Mathematics, University of North Carolina**, Chapel Hill, NC
Dissertation title: *Analysis of the Navier-Stokes and other nonlinear evolution equations with initial data in Besov-type spaces*
Adviser: **Michael E. Taylor**

1994 **Laurea** (BS/MS), **Universitá degli Studi di Milano**, Milan, Italy
Major: **Physics**, GPA: 4.0, graduated with Highest Honors
Research area: Mathematical Physics
Thesis title: *Two-knots, the Tetrahedron equation and Topological Field Theories in 4D* (in Italian)
Adviser: **Paolo Cotta-Ramusino**

EMPLOYMENT

2019-present	**Associate Head for Administration** (on leave 2023-2024)	**Pennsylvania State University**
2017-2018	co-**Associate Head for Graduate Studies**	**Pennsylvania State University**
2013-present	**Professor**	**Pennsylvania State University**
2009-2013	**Associate Professor**	**Pennsylvania State University**
2003-2009	**Assistant Professor**	**Pennsylvania State University**
2000-2003	**Gibbs Instructor**	**Yale University** (on-leave 2001-2002)
Jan-June 2002	**Post-doctorate Fellow**	**Institute for Mathematics and its Applications**
Aug-Dec 2001	**Post-doctorate Fellow**	**Mathematical Sciences Research Institute**
June-July 2000	**Liftoff Mathematician**	**Clay Mathematics Institute**

PROFESSIONAL DEVELOPMENT

2013-2019 **Abilitazione** (Abilitation) to Full Professor, Italian Ministry of Research, Science, and the University (MUIR).

GRANTS AND AWARDS

Honors and Awards

2023	**Simons Fellow in Mathematics**
2021	**Society for Industrial and Applied Mathematics (SIAM) Fellow**
2019	**Teresa cohen Mathematical Service Award**, Penn State University
2018-present	**Distinguished Senior Scholar**, Penn State University
2011	**Association for Women in Mathematics, Ruth I. Michler Memorial Prize**.

Grants

Simons Foundation:

2023-2024 **Grant 1036502**: *Direct and inverse problems in continuum mechanics* (sole PI), $ 157,178

US National Science Foundation, Division of Mathematical Sciences:

2022-2025 **Grant 2206453**: *Partial Differential Equations for Incompressible Fluids and Elastic Solids* (sole PI), $ 374,420

2019-2022 **Grant 1909103**: *Complex and singular behavior in Continuum Mechanics models* (sole PI), $ 300,000

2018-2019 **Grant 1764156**: *Conference on Hyperbolic Problems* (co-PI), $ 27,000

2016-2020 **Grant 1615457**: *Singular Problems in Continuum Mechanics* (sole PI), $ 285,166

2016-2023 **Grant 1642548**: *Timed for a Successful Career: NSF/AWM Travel Grants for Women in the Mathematical Sciences*, renewal (co-PI), $ 432,687

2013-2016 **Grant 1312727**: *Analysis and computation of partial differential equations in Mechanics and related fields* (sole PI), $ 239,817

2012-2014 **Grant 1207940**: *A Conference on Partial Differential Equations: Analytic and Geometric Aspects* (co-PI), $ 37,000

2012-2015 **Grant 1153905**: *Timed for a Successful Career: NSF/AWM Travel Grants for Women in the Mathematical Sciences* (co-PI), $ 492,399

2010-2014 **Grant 1009713**: *Applied Analysis of Partial Differential Equations and Related Inverse Problems in Mechanics* (Sole PI), $ 191,095
Grant 1009714: *Collaborative Research: Analysis of incompressible high Reynolds number flows* (PI), $15, 318

2007-2010 **Grant 0708902**: *Aspects of Fluid Mechanics and Elasticity from the Point of View of Microlocal and Fourier Analysis* (Sole PI), $ 125,000

2004-2008 **Grant 0405803**: *A Micro-Local and Fourier-Analytical Approach to Some Non-Linear Problems in Fluid Mechanics and Elasticity* (Sole PI), $ 111,280

US Navy, Office of Naval Research:

2018-2019 **Grant N00014-18-1-2721**, *Financial Support for XVII International Conference on Hyperbolic Problems: Theory, Numerics, & Applications (HYP2018)* (PI), $ 10,000

Other grants

2004	**Association for Women in Mathematics** Travel Grant
2001	**Association for Women in Mathematics** Travel Grant

VISITING POSITIONS

February-March 2022	Newton Institute, Cambridge, UK
January - May 2020	New York University-Abu Dhabi, Abu Dhabi, UAE
May 2019	University of Bari, Bari, Italy (sponsored by INDAM, National Institute of High Mathematics)
February - March 2017	Institute for Computational and Experimental Research in Mathematics, Providence
September - November 2014	Institute for Pure and Applied Mathematics, Los angeles
January - May 2012	Michler Fellow, Cornell University, Ithaca
January - June 2010	Institute for Mathematics and its Applications, Minneapolis
August-September 2010	Mathematical Sciences Research Institute, Berkeley
October, 2008	
December, 2008	University of Florence, Florence, Italy
May, 2009	IMECC, UniCamp, Campinas, Brazil
May 2006, 2007	
August, 2002	

PUBLICATIONS

Articles Published in Peer-Refereed Journals

[1] M. Coti Zelati, G. Crippa, G. Iyer, A. L. Mazzucato, Mixing in incompressible flows: transport, dissipation, and their interplay. Preprint arXiv:2308.00358. *Notices of the American Mathematical Society* **71** (May 2024), n. 5, 593-604.

[2] A. Aspri, E. Beretta, A. L. Mazzucato, Dislocations in a layered medium with applications to fault detection. *Journal of the European Mathematical Society* **25** (2023), no. 3, 1091-1112.

[3] G.-M. gie, J. P. Kelliher, A. L. Mazzucato, *The linearized 3D Euler equations with inflow, outflow*. Preprint arXiv:2203.14410. *Advances in Differential Equations* **28** (2023), no. 5-6, 373-412.

[4] M. Coti Zelati, M. Dolce, Y. Feng, A. L. Mazzucato, Global existence for the two-dimensional Kuramoto-Sivashinsky equation with a shear flow. *Journal of Evolution Equations* **21** (2021), 5079-5099.

[5] D. Ambrose, A. L. Mazzucato, Global solutions of the two-dimensional Kuramoto-Sivashinsky equation with a linearly growing mode in each direction. *Journal of Nonlinear Science* (2021), 31:96.

[6] Y. Feng, A. L. Mazzucato, Global existence for the two-dimensional Kuramoto-Sivashinsky equation with advection. *Communications in Partial Differential Equations* **47** (2021), n. 2, 1-28.

[7] A. Aspri, E. Beretta, M. V. De Hoop, A. L. Mazzucato, Detection of dislocations in a 2D anisotropic elastic medium. *Rendiconti di Matematica e delle sue Applicazioni* **42** (2021), n. 3-4, 183-195.

[8] A. Aspri, E. Beretta, A. L. Mazzucato, M. V. de Hoop, Analysis of a model of elastic dislocations in geophysics. *Archive for Rational Mechanics and Analysis* **236** (2020), n.1, 71–111.

[9] N. Chemetov, A. L. Mazzucato, Embeddings for the space LD^p_γ on sets of finite perimeter. *Proceedings A of the Royal Society of Edinburgh*, **150** (2020), n. 5, 2442–2461.

[10] G.-M. Gie, J. P. Kelliker, M. Lopes Filho, A. L. Mazzucato, H. J. Nussenzveig Lopes, The vanishing viscosity limit for some symmetric flows. *Annales de l'Institut Henri Poincaré*, **36**, (2019), n. 5, 1237–1280.

[11] D. M. Ambrose, A. L. Mazzucato. Global existence and analyticity for the 2D Kuramoto-Sivashinsky equation. *Journal of Difference and Differential Equations*, **31** (2019), n. 3, 1525–1547.

[12] G. Alberti, G. Crippa, A. L. Mazzucato. Loss of regularity for the continuity equation with non-Lipschitz velocity field. *Annals of PDE* **5** (2019), n. 1, 5:9.

[13] G. Alberti, G. Crippa, A. L. Mazzucato. Exponential self-similar mixing by incompressible flows. *Journal of the American Mathematical Society*, **32** (2019), n. 2, 445–490.

[14] G.-M. Gie, J. P. Kelliher, A. L. Mazzucato. Boundary layers for the Navier-Stokes equations linearized around a stationary Euler flow. *Journal of Mathematical Fluid Dynamics*, **20** (2018), n. 4, 1405–1426.

[15] S. Zhang, A. L. Mazzucato, V. Nistor, Semi-groups and the mean reverting SABR stochastic volatility model. Preprint arxiv:1605.03097. *North-Western European Mathematical Journal*, **4** (2018), 119–155.

[16] S. Nicaise, H. Li, A. Mazzucato, Regularity and a priori error analysis of a Ventcel problem in polyhedral domains. *Mathematical Methods in the Applied Sciences*, **40** (2017), n. 5, 1625–1636.

[17] C. Lacave, A. Mazzucato, The vanishing viscosity limit in the presence of a porous medium. *Mathematische Annalen*, **365** (2016), n. 3, 1527 – 1557.

[18] M. C. Lopes Filho, A. L. Mazzucato, H. J. Nussenzveig Lopes, D. Niu, E. S. Titi, Planar limits of three-dimensional incompressible flows with helical symmetry. *Journal of Dynamics and Differential Equations*, **26** (2014), n. 4, 843–869.

[19] G. Alberti, G. Crippa, A. L. Mazzucato, Exponential self-similar mixing and loss of regularity for continuity equations. *Comptes Rendus de l'Académie des Sciences de Paris, Series I*, **352** (2014), 901–906.

[20] A. L. Mazzucato, V. Nistor, Q. Qu, Quasi-optimal rates of convergence for the Generalized Finite Element Method in polygonal domains. *Journal of Computational and Applied Mathematics* **263** (2014), 466 – 477.

[21] I. Kukavica, A. Mazzucato, A. Tuffaha, Sharp trace regularity for an anisotropic elasticity system. *Proceedings of the American Mathematical Society* **141** (2013), 2673–2682.

[22] A. L. Mazzucato, V. Nistor, Q. Qu. A non-conforming Generalized Finite Element Method for transmission problems. *SIAM Journal on Numerical Analysis* **51** (2013), n.1, 555-576.

[23] E. Lunasin, Z. Lin, A. Novikov, A. Mazzucato, and C. Doering, Optimal mixing and optimal stirring for fixed energy, fixed power or fixed palenstrophy flows. Special Issue "Incompressible Fluids, Turbulence, and Mixing." *Journal of Mathematical Physics* **53**, 115611 (2012), 15 pages.

[24] B. Haines, A L. Mazzucato, A proof of Einstein's effective viscosity for a dilute suspension of spheres, *SIAM Journal on Mathematical Analysis* **44** (2012), no. 3, 2120-2145.

[25] N. Balci, A. L. Mazzucato, J. Restrepo, G. R. Sell, Ensemble dynamics and bred vectors. *Monthly Weather Review* **140** (2012), no. 7, 2308-2334.

[26] D. Han, D. Niu, A. L. Mazzucato, X. Wang, Boundary layer for a class of nonlinear pipe flow. *Journal of Differential Equations* **252** (2012), no. 12, 6387–6413.

[27] E. Beretta, E. Bonnetier, E. Francini, A. L. Mazzucato. Small volume asymptotics for anisotropic elastic inclusions. *Inverse Problems and Imaging* **6** (2012), no. 1, 1–23.

[28] A. L. Mazzucato, D. Niu, X. Wang. Boundary layer associated to a class of 3D nonlinear plane parallel channel flows. *Indiana University Mathematics Journal* **60** (2011), no. 4, 1113–1136.

[29] W. Cheng, N. Costanzino, J. Liechty, A. L. Mazzucato, and V. Nistor. Closed-form asymptotics and numerical approximations of 1D parabolic equations with applications to option pricing. *SIAM Journal on Financial Mathematics* **2** (2011), 901–934.

[30] A. Mazzucato, M. Taylor. Vanishing viscosity limits for a class of circular pipe flows. *Communications in Partial Differential Equations* **36** (2011), no. 2, 328 – 361 .

[31] R. Costantinescu, N. Costanzino, A. L. Mazzucato, and V. Nistor. Approximate solutions to second order parabolic equations I: analytic estimates. *Journal of Mathematical Physics* **51** (2010), 103502 (26 pp.)

[32] C. Bacuta, A. L. Mazzucato, V. Nistor, L. T. Zikatanov, Interface and mixed boundary value problems on n-dimensional polyhedral domains. *Documenta Mathematica* **15** (2010), 687–745.

[33] H. Li, A. Mazzucato, V. Nistor, Analysis of the Finite Element Method for transmission/mixed boundary value problems on general polygonal domains, *Electronic Transactions on Numerical Analysis* **37** (2010), 41–69.

[34] A. L. Mazzucato, V. Nistor, Well-posedness and regularity for the elasticity equation with mixed boundary conditions on polyhedral domains and domains with cracks, *Archive for Rational Mechanics and Analysis* , **195** (2010) no. 1, 25–73.

[35] M. C. Lopes Filho, A. Mazzucato, H. J. Nussenzveig Lopes, M. Taylor, Vanishing viscosity limits and boundary layers for circularly symmetric 2D flows. *Bulletin of the Brazilian Mathematical Society, New Series*, **39** (2008), no. 4, 471–513.

[36] A. Mazzucato, M. Taylor, Vanishing viscosity plane parallel channel flow and related singular perturbation problems, *Analysis & PDE* **1** (2008), no. 1, 35–93.

[37] M. C. Lopes Filho, A. L. Mazzucato, H. J. Nussenzveig Lopes, Vanishing viscosity limit for incompressible flow inside a rotating circle, in "Perspectives in Fluid Dynamics", *Physica D: Nonlinear Phenomena* **237** (2008), no. 10–12, 1324–1333.

[38] A. L. Mazzucato, L. V. Rachele, On transversely isotropic elastic media with ellipsoidal slowness surfaces, *Mathematics and Mechanics of Solids*, **13** (2008), no. 7, 611–638.

[39] A. L. Mazzucato, L. V. Rachele, On uniqueness in the inverse problem for transversely isotropic elastic media with a disjoint wave mode, *Wave Motion* **44** (2007), no. 7–8, 605–625.

[40] A. L. Mazzucato, V. Nistor, Mapping properties of heat kernels, maximal regularity, and semi-linear parabolic equations on noncompact manifolds, *Journal of Hyperbolic Differential Equations* **3** (2006), no. 4, 599–629.

[41] A. L. Mazzucato, L. V. Rachele, Partial uniqueness and obstruction to uniqueness in inverse problems for anisotropic elastic media. *Journal of Elasticity* **83** (2006), no. 3, 205–245.

[42] M. C. Lopes Filho, A. L. Mazzucato, H. J. Nussenzveig Lopes, Weak solutions, renormalized solutions and enstrophy defects in 2D turbulence, *Archive for Rational Mechanics and Analysis* **179** (2006), no. 3, 353–387.

[43] A. L. Mazzucato, On the energy spectrum for weak solutions of the Navier-Stokes equations, *Nonlinearity* **18** (2005), no. 1, 1–19.

[44] A. L. Mazzucato, Decomposition of Besov-Morrey spaces, in "Harmonic Analysis at Mount Holyoke", 279–294, *Contemporary Mathematics* **320**, American Mathematical Society, 2003.

[45] A. L. Mazzucato, Besov-Morrey spaces: function space theory and applications to nonlinear PDE, *Transactions of the American Mathematical Society* **355** (2003), no. 4, 1297–1364.

Invited Peer-Reviewed Articles

[45] Y. Feng, A. L. Mazzucato, C. Nobili, *Enhanced dissipation by Circular Symmetric and Parallel Pipe Flows. Physica D* **445** (2023), 133640.

[46] W. Cheng, A. L. Mazzucato, V. Nistor, Approximate solutions to second-order parabolic equations: evolution systems and discretization. *Discrete and Continuous Dynamical Systems, Series S* **15** (2022), 3571-3602.

[47] G. Crippa, T. Elgindi, G. Iyer, A. L. Mazzucato, Growth of Sobolev norms and loss of regularity in transport equations. *Philosophical Transactions of the Royal Society A* **380** (2022), 20210024.

[48] A.L. Mazzucato, Y. Zhang, Transmission Problems for Parabolic Operators on Polygonal Domains and Applications to the Finite Element Method. *La Matematica* **1** (2022), 225-262.

[49] A. L. Mazzucato, Remarks on anomalous dissipation for passive scalars. *Philosophical Transactions of the Royal Society A* **380** (2021), 20210099.

[50] Y. Maekawa, A. L. Mazzucato, Inviscid Limit And Boundary Layer Of The Navier-Stokes Flow, *Handbook of Mathematical Analysis in Mechanics of Viscous Fluids* (Editors: Y. Giga and A. Novotný), Springer 2017, 1-48.

Published Volumes

[51] Volume *Transport, Mixing and Fluids*, G. Crippa, A. Mazzucato Editors, DeGruyter Open, 2017.

[52] Special Issue: Nonlinear Partial Differential Equations in Mathematical Fluid Dynamics. *Physica D*, **376/377** (2018), C. R. Doering, E. Lunasin, A. L. Mazzucato Editors.

Proceedings Articles in Peer-Refereed Journals

[53] A. Mazzucato, C. Bacuta, and V. Nistor, Anisotropic regularity and optimal rates of convergence for the Finite Element Method on three dimensional polyhedral domains. *Advances in Mathematics* (Proceedings of The Seventh Congress of Romanian Mathematicians, June 29 - July 5, 2011, Brasov, Rumenia), pp. 57-73, Editura Academiei, Bucharest.

[54] A. L. Mazzucato, On the zero viscosity limit in incompressible fluids. *Physica Scripta* **T132** (2008), 014002 (6 pp). Proceedings of the 1st International Conference "Turbulent Mixing and Beyond", ICTP, Trieste, 18-26 August 2007.

Manuscripts Submitted to Peer-Refereed Journals

[55] G.-M. gie, J. P. Kelliher, A. L. Mazzucato, *The 3D Euler equations with inflow, outflow and vorticity boundary conditions.* Preprint arXiv:2203.15180.

STUDENTS AND POSTDOCS

Postdoctoral scholars:

2019-2022 **Yuanyuan Feng**, S. Chowla Assistant Research Professor, Penn State

PhD students:

2021-present	**Anping Pan**, project on variational formulations of fluid equations (co-adviser Alexei Novikov, PSU) **Haoran Qi**, project on microlocal analysis and inverse problems **Arum Lee**, project on fault detection
2021-2022	**Chao Tian**, PhD Thesis *Mean-Field Models and Nonlocal Problems* (co-adviser Qiang Du, Columbia), graduated August 2022. (Currently at Swiss Re America Holding Corporation.)
2018-2019	**Juan Batista**, PhD Thesis *Analysis and robust precontioning for numerical implementations of Richards' equation in groundwater flow* (co-advised with Ludmil Zikatanov), graduated December 21, 2019. (Currently at MITRE.)
2012-2017	**Yajie Zhang**, Ph.D. Thesis *Transmission problems for parabolic equations and applications to the Finite Element Method*, graduted August 2017. (Assistant Professor, Zhongnan University, China)).
2012-2016	**Siyan Zhang**, Ph.D. Thesis: *Heat Kernels, Exponentials in Solvable Lie Groups, and the Mean Reverting SABR Model*, graduated August 2016. (Currently at Wells Fargo Bank).
2008–2011	**Wen Cheng**, co-advised with Victor Nistor, Ph.D. Thesis: *Approximate Solutions to Second Order Parabolic Equations with Applications to Option Pricing*, graduated December 2011. (Currently at Credit Suisse.)
2007–2012	**Qingqin Qu**, co-advised with Victor Nistor, Ph.D. Thesis: *The Generalized Finite Element Method: numerical treatment of singularities, interfaces, and boundary conditions*, graduated August 2012. (Currently at Idaho State University.)

Master Students:

2017-2018	**Federico Vesentini**, University of Verona, Italy, graduated March 2018 Thesis title: *Dyson-Taylor commutator method applied to the CEV model: analytical and numerical results*, co-supervisor, Adviser: Luca Di Persio. *problems for American type options*, co-supervisor, Adviser: Luca Di Persio
2016-2017	**Giada Ruzza**, University of Verona, Italy, graduated March 2017 Thesis title: *Efficient approximation schemes to the solution of pricing problems for American type options*, co-supervisor, Adviser: Luca Di Persio.

Graduate Research Assistants:

Summer 2014	**Chao Liang**, partially supported with funds from NSF grant DMS-1009713.
2013-2014	**Qingtian Zhang**, partially supported with funds from NSF grant DMS-1009714.
2011	**Carol Gaertner**, partially supported with funds from NSF grant DMS-1009714.

Undergraduate students:

2021-2022	**Hrishikesh Deshpande** and **Tianhao Zhao**, project on models for option pricing.

2020-2021 **Yiawei Wu**, Honors thesis on the CIR/CEV option pricing models.
2019-2020 **Zhengyang Shan**, research project on numerical methods for option pricing.
2017-2019 **Stephen Thorton**: Honors Thesis (2019): *Helical Symmetry Solutions to the Equations of Magnetohydrodynamics.*
2017-2019 **Xinyu Wang**, Honors Thesis (2019): *Interest Rate Models and Option Pricing.*
2016-2019 **Ivan Yen**, work on option pricing (withdrawn).
2016-2017 **Simranjeet Singh**, Honors Thesis (2017): *Approximating Parabolic PDEs with Applications to Financial Option Pricing.*
2011 – 2015 **Luke Edwards**, co-supervised with V. Nistor, Project Title: *A Green's Function Numerical Method for Parabolic Partial Differential Equations*, *SIURO (SIAM Undergraduate Research Online)*, Vol. 9 (2016).
2010–2014 **Bingqian Lu**, Honors Thesis (2014): *Transformation optics methodology review and its appplication to antenna lens designs* (previous project on *Monte Carlo simulations and option pricing*).
2013–2014 **Yifan Jiang**, Project Title: *Finite Element Analysis of a One-dimensional Helmholtz Equation.*
Fall 2011 **Matt Fennema**
Fall 2010 **Lance Boyer**, Maple Project on Taylor expansions and commutators of operators.
2008–2010 **Anirban Roy**, co-supervised with V. Nistor, Project Title: *On numerical methods for elliptic transmission eigenvalue problems. SIURO* Vol. 4 (2011).
2007–2009 **Fara Delitsky**, co-supervised with V. Nistor, Project Title: *Numerical methods for elliptic equations and linear algebra.*

REU students:

2022 **Ayodeji Odetola**, project on machine learning and inverse problems (co-supevised with Leonid Berlyand).

2017-19 **Stephen Thorton**, project on MHD, Honors Thesis (2019): Helical Symmetry Solutions to the Equations of Magnetohydrodynamics.

2015-17 **Javier Mosquera**, work on parabolic equations/financial calculus.

2014 **Adam Stawski**, project on growth modes for the Kuramoto-Sivashinski equation,
Creed Reilly, Project title: *Solving a transmission problem for the 1D Diffusion Equation.*

2013 **Cory Grube** and **Patrick Mangan**: Project title: *Application of the Finite Element Method to Poisson's equation.*
Hongyuan Zhan and **Yikun Zhao**: Project title: *Visualization of mixing of a passive tracer by incompressible flows.*

PhD Committees (2003-present): Xi Chen (Mechanical Engineering), Hao Chi, Alex Christie, Robert Creese, Hai Chi, Anirban Das, Giancarlo Facchi, Vitaliy Gyrya, Oleksandr Iaroshenko, Brian Haines, Nestor Handzy, Arkadz Kirshtein, Hai Le, Chao Liang, Hengguang Li, Tianjiang

Li, Olexandr Mesiats, Matthew Mizuhara, Trinh Nguyen, Jun Ni, Brian Nowakowski, Yu Qiao, Shawn Ryan, Hans Satwata, Chao Tian, Johannes Van Erp, Kai Yang, Deling Wang, Ke Wang, Stephen White, He Zhang, Qingtian Zhang, Xiaofei Zheng, Datong Zhou, Yunrong Zhu.

INVITED TALKS

Webinars

1 *Global existence for the 2D Kuramoto-Sivashinsky equation*, FAU DCN-AvH Seminar, September 14, 2023.

2 *Boundary layers for a viscous fluid in a corner domain*, Session "Theory, numerics and data driven methods for fluids", 10th ICIAM, August 20-25, 2023.

3 *Introduction to Boundary Layers* (12-hour minicourse), Beijing Normal University, May 2023.

4 *Mixing and enhanced dissipation*, Turbulence: Problems at the Interface of Mathematics and Physics, ICTS, Bangalore, January 16-27 2023.

5 *Mixing, transport, and enhanced dissipation*, Mathematics Colloquium, Shanghai Jiao Tong University, July 7, 2022.

6 *Growth of Sobolev norms and loss of regularity for transport equations*, AMS Special Session on Recent Advances in Fluids and Related Models, JMM, April 6-9, 2022.

7 *Boundary-value-interface problems on polyhedral domains*, AWM Special Session on Celebrating the Mathematical Contributions of the AWM, JMM, April 6-9, 2022.

8 *An inverse problem in fault detection*, International Inverse Problems Webinar, January 20, 2022

9 *On Euler equations with in-flow and out-flow boundary conditions*, NYU-AD Colloquium, Dec 5, 2021.

10 *Global existence for the 2D Kuramoto-Sivashinsky equation*, Duke-Daoshang Seminar, Nov 29, 2021.

11 *Global existence for the 2D Kuramoto-Sivashinsky equation with growing modes*, Special Session on Progres in Nonlinear Waves, AMS Fall Central Meeting, October 9-10, 2021.

12 *Global existence for the 2D Kuramoto-Sivashinsky equation*, Analysis Seminar, University of Brasilia, Brazil, September 24, 2021.

13 *On Euler equations with in-flow and out-flow boundary conditions*, V Workshop on Fluids and PDE, September 20-October 1, 2021.

14 *Global existence for the 2D Kuramoto-Sivashinsky equation*, Special Session "New Developments in Fluid Dynamics", Congress of the Americas, July 15-19, 2021.

15 *Direct and inverse problems for a model of dislocations in geophysics*, Springer Nature PDEA Webinar, June 3, 2021.

16 *Transport, mixing, and enhanced dissipation*, Analysis Seminar, ETH, Zurich, June 1, 2021.

17 *Introduction to boundary layers and the vanishing viscosity limit for incompressible flows* (12-hour minicourse), Gran Sasso Science Institute, May 17-26, 2021.

18 *Enhanced dissipation and global existence for the 2D Kuramoto-Sivashinsky equation*, MSU/UM Joint Analysis Seminar, April 30, 2021.

19 *Global existence for the 2D Kuramoto-Sivashinsky equation*, Online Workshop "Recent Developments in Fluid Dynamics", MSRI, April 12-30, 2021.

20 *Mixing, transport, and enhanced dissipation*, Mathematics Colloquium, Tulane University, April 8, 2021.

21 *Enhanced dissipation and global existence for the 2D Kuramoto-Sivashinsky equation*, Brown PDE Seminar, April 2, 2021.

22 *Mixing, irregular transport, and enhanced dissipation*, PDE Seminar, Shanghai Tech University, March 25, 2021.

23 *Global existence for the 2D Kuramoto-Sivashinsky equation by mixing*, Oberwolfach Online Workshop "Homogenization Theory: Periodic and Beyond", March 15-19, 2021.

24 *Mixing, transport, and enhanced dissipation*, Fisk Distinguished Speaker Series, University of Wyoming, March 4, 2021.

25 *Irregular transport and mixing in fluids*, Mathematics Colloquium, Old Dominion University, February 11, 2021.

26 *On Euler equations with in-flow and out-flow boundary conditions*, Special Session "Geophysical fluids flows", Joint Mathematics Meetings, January 7, 2021.

27 *Optimal mixing in incompressible flows*, OneWorld PDE Webinar, December 1, 2020.

28 *Enhanced diffusion and global existence for the Kuramoto-Sivashinsky equation*, Special Session on "Recent advances in the theory of fluid dynamics", AMS Fall Western Meeting, October 17-18, 2020.

29 *Direct and inverse problems for a model of dislocations in geophysics*, Non-linear PDE Seminar, Texas A&M University, September 1, 2020.

Talks at University or Institute Seminars

1 *Direct and Inverse problems in monitoring of faults*, SITE Seminar, NYU-Abu Dhabi, UAE, March 26, 2024.

2 *Mixing in fluids: irregular transport, enhanced dissipation, and applications*, Mathematics Colloquium, UIC, Chicago, IL, February 2, 2024.

3 *Mixing in fluids: irregular transport, enhanced dissipation, and applications*, Mathematics Colloquium, Notre Dame University, IN, January 31, 2024

4 *Direct and Inverse problems in monitoring of faults*, Analysis Seminar, Milan University, Milan, Italy, January 17, 2024.

5 *Direct and Inverse Problems in Monitoring of Faults*, Institute of Applied Mathematics Seminar, University of British Columbia, Vancouver, BC, Canada, November 27, 2023.

6 *Direct and inverse problems for elastic dislocations in geophysics*, Analysis and PDE Seminar, Emory University, Atlanta, GA, April 21, 2023.

7 *Mixing, transport, and enhanced dissipation*, Mathematics Colloquium, McMaster University, Hamilton, Canada, February 3, 2023.

8 *Direct and inverse problems for elastic dislocations in geophysics*, Mathematics Colllloquioum, Case Western Reserve University, Cleveland, OH, November 4, 2022.

9 *Irregular transport and loss of regularity for transport equations*, Centre for Stability Seminar, NYUAD, Abu Dhabi, UAE, September 22, 2022.

10 *Boundary Layers in Fluid Flows* (5-hour minicourse), Summer School "Recent Trends in Partial Differential Equations", Duke University, August 22-26, 2022.

11 *Global existence for the 2D Kuramoto-Sivashinsky equation with growing modes*, Analysis Seminar, Basel University, June 10, 2022.

12 *Global existence for the 2D Kuramoto-Sivashinsky equation*, Dynamical systems and PDE Seminar, University of Surrey, Guilford, UK, March 25, 2022.

13 Irregular transport and loss of regularity for transport equations, PDE Seminar, Cambridge University, UK, March 14, 2022

14 *Loss of regularity for transport equations and optimal mixing*, 84th Midwest PDE Seminar, Illinois Institute of Technology, Chicago, IL (October 26-27, 2019)).

15 *Microlocal analysis/inverse problems/PSDOs* (2-hour tutorial), Connections for Women: Microlocal Analysis Workshop, MSRI, Berkeley, CA (August 29 -30, 2019).

16 *Direct and inverse problems for a model of dislocations in geophysics*, Mathematics Seminar, Universitá di Bari, Bari, Italy (May 15, 2019).

17 *Mixing and transport by incompressible flows*, Mathematics Colloquium, and *Boundary layers and the vanishing viscosity limit for incompressible flows*, Analysis Seminar, Oregon State University, OR (April 9, 2019).

18 *Direct and inverse problems for a model of dislocations in geophysics*, Applied Mathematics Seminar, Simon Fraser Univesity, Vancouver, Canada (April 6, 2019).

19 *Mixing and transport by incompressible flows*, university of Victoria, Victoria, Canada (April 4, 2019)

20 *On the vanishing viscosity limit for incompressible flows* , Diff. Geom./Math. Physics/PDE Seminar, University of British Columbia, Vancouver, Canada (April 3, 2019).

21 *On the vanishing viscosity limit for incompressible flows*, Analysis & Calculus of Variations Seminar, Universita' di Pisa, Pisa, Italy (March 6, 2019).

22 *Boundary layers and the vanishing viscosity limit in incompressible flows*, Mathematics Colloquium, NYU-Abu Dhabi, Abu Dhabi, UAE (February 19, 2019).

23 *Optimal Mixing in Incompressible Flows*, Mathematics Colloquium, University of Würzburg, Würzburg, Germany (December 19, 2018).

24 *Direct and inverse problems for a model of dislocations in geophysics*, CNA Colloquium, Carnegie Mellon University, PA (December 5, 2018).

25 *Loss of regularity for transport equations and optimal mixing*, Analysis of Fluids Seminar, Princeton University, NJ (November 15, 2018).

26 *Optimal mixing and irregular transport by incompressible flows*, Applied Math & Analysis Seminar, Duke University, NC (October 29, 2018).

27 *On the vanishing viscosity limit in incompressible flows*, Non-linear PDE Seminar, Texas A&M University, TX (September 24, 2018).

28 *Boundary layers and the vanishing viscosity limit in incompressible flows*, Mathematics Colloquium, Arizona State University, AZ (September 6, 2018).

29 *On the two-dimensional Kuramoto-Sivashinsky equation*, Analysis Seminar, Capital Normal University, Beijng, China (May 24, 2018).

30 *Optimal mixing by incompressible flows*, Applied Mathematics Colloquium, UMD-Baltimore County, MD (April 20, 2018).

31 *On the two-dimensional Kuramoto-Sivashinsky equation*, PDE Seminar, UC-San Diego, CA (April 17, 2018)

32 *Boundary layers and the vanishing viscosity limit in incompressible flows*, CSCAMM Seminar, U. Maryland, MD (February 21, 2018).

33 *Optimal mixing and irregular transport by incompressible flows*, Mathematics Colloqium, Indiana University, IN (February 12, 2018).

34 *Optimal mixing and irregular transport by incompressible flows*, Mathematics Colloquium, Michigan State University, MI (February 9, 2018).

35 *Optimal Mixing in incompressible flows*, Mathematics Seminar, Gran Sasso Science Institute, L' Aquila, Italy (May 19, 2017).

36 *Optimal mixing and irregular transport by incompressible flows*, Mathematics Colloquium, Rice University, Houston, TX (January 19, 2017).

37 *Fluid flow at high Reynolds numbers*, Mathematics Colloquium, University of Pitssburgh, Pittsburgh, PA (September 9, 2016).

38 *Optimal mixing and stirring in incompressible flows* , Mathematics Colloquium, University of Houston, Houston, TX (March 23, 2016).

39 *The vanishing viscosity limit in porous media*, Analysis of Fluids and Related Topics Seminar, Princeton University, Princeton, NJ (December 3, 2015).

40 *Asymptotics for the displacement in elastic media perturbed by small inclusions*, Inverse Problems Seminar, University of Delaware, Newark, DL, (December 2, 2015).

41 *Optimal mixing and Stirring in Incompressible Flows*, Mathematics Seminar Series, New York University-Abu Dhabi, Abu Dhabi, UAE (November 22, 2015).

42 *Green-function methods for pricing of options*, Financial Mathematics Seminar, University of Lisbon, Lisbon, Portugal (June 9, 2015)

43 *Mixing and transport by incompressible flows*, Mathematics Colloquium, University at Albany, Albany, NY (February 27, 2015)

44 *Optimal mixing by incompressible flows*, Joint Nonlinear Analysis/PDE Seminar, Rutgers University, Piscataway, NJ (December 2, 2014)

45 *Optimal mixing by incompressible flows*, Mathematics Colloquium, University of Toledo, Toledo, OH (November 21, 2014)

46 *Self-similar mixing and loss of regularity for continuity equations*, Joint UCLA/Caltech Analysis Seminar, Caltech, Loa Angeles, CA (November 7, 2014)

47 *Optimal mixing by incompressible flows*, CAMS Colloquium, University of Southern California, Los Angeles, CA (September 15, 2014)

48 *Analisi dello strato limite per una classe di flussi incomprimibili non lineari* (*Boundary layer analysis for a class of incompressible non-linear flows*, in Italian), Calculus of Variations Seminar, Politecnico, Milan, Italy (June 23, 2014)

49 *Boundary layer analysis for pipe and channel flows*, PDE Seminar, Université de Lorraine, Metz, France (June 13, 2014)

50 *Fluids flow at high Reynolds numbers*, Mathematics Colloquium, George Washington University, Washington D.C. (September 27, 2013)

51 *Green's functions for time-dependent Fokker-Planck equations*, CSCAMM Seminar, University of Maryland, College Park, MD (September 25, 2013)

52 *Effective viscosity in dilute suspensions*, Applied Math Seminar, University of Southern California, Los Angeles, CA (June 14, 2013)

53 *Enstrophy dissipation in 2D incompressible fluids*, Analysis Seminar, Basel University, Basel, Switzerland (May 15, 2013)

54 *Incompressible Fluid Flows at High Reynolds Numbers*, Mathematics Colloquium, Distinguished Women Scientist and Engineers Series, University of Minnesota, Minneapolis, MN (March 7, 2013)

55 *Asymptotic expansions for the displacement in elastic media with small inclusions*, PDE Seminar, University of Minnesota, Minneapolis, MN (March 6, 2013)

56 *Boundary layers for a class of non-linear flows in pipes and channels*, Analysis Seminar, UCLA, Los Angeles, CA (February 8, 2013)

57 *Effective viscosity in dilute suspensions of spheres*, Analysis/PDE Seminar, UFRJ, Rio de Janeiro, Brazil (October 4, 2012)

58 *Boundary layer analysis for certain classes of non-linear incompressible flows*, Analysis Seminar, SUNY, Binghamton (April 11, 2012)

59 *Ensemble Dynamics and "Bred Vectors"*, Ellis B. Stouffer Colloquium, University of Kansas, Lawrence (April 7, 2012)

60 *Boundary layer analysis for certain non-linear fluid flows*, Analysis/PDE Seminar, UNC, Chapel Hill (April 3, 2012)

61 *Explicit parametrices for time-dependent Fokker-Planck equations*, Applied Math and Analysis Seminar, Duke University, Durham (April 2, 2012)

62 *The Analysis of Incompressible Fluids at High Reynolds Numbers*, Michler Memorial Lecture, Cornell University, Ithaca (March 8, 2012)

63 *Ensemble dynamics and Bred Vectors*, PDE/Applied Math Seminar, Indiana University, Bloomington (February 13, 2012)

64 *Boundary layers in incompressible fluid flow*, Mathematics Colloquium, University of Illinois, Chicago, (February 10, 2012)

65 *Boundary Layer Analysis for some non-linear flows* (in Italian), Analysis Seminar, Universitá di Palermo, Italy (December 21, 2011)

66 *Asymptotic expansions for the displacement in elastic media with small inhomogeneities*, Differential Equations Seminar, University of Michigan, Ann Arbor (October 27, 2011)

67 *Approximate Solutions to forward kolmogorov equations*, Capital Normal University, Beijing, China (June 8, 2011)

68 *A study of nonlinear PDE's appearing in Finance* (seminar series joint with V. Nistor), Mathematical Finance and Probability Seminar, Rutgers University, New Brunswick (April 12, 2011)

69 *Vanishing viscosity limit and boundary layers in Couette flows*, Midwest PDE Seminar, University of Illinois, Urbana-Champaign (March 20, 2011)

70 *Explicit parametrices for Fokker-Planck equations*, Applied Mathematics Seminar, University of California, Davis (February 10, 2011)

71 *Vanishing viscosity limit and boundary layers in incompressible flows*, CAMS Colloquium, University of Southern California (February 7, 2011)

72 *Boundary layer analysis for non-linear channel flows* (in Italian), Analysis Seminar, Universitá di Pisa, Pisa, Italy, (December 16, 2010)

73 *The vanishing viscosity limit for channel and pipe flows*, CNA Seminar, Carnegie Mellon University (October 26, 2010)

74 *Explicit approximate Green's function for parabolic equations*, MSRI Inverse Problems Seminar (September 17, 2010)

75 *Finite Element Method for mixed boundary value/interface problems on generalized polygons*, Solids and Continuum Mechanics Seminar, University of Minnesota (April 20, 2010)

76 *Vanishing Viscosity Limits and Singular Perturbation Problems*, PDE Seminar, University of Minnesota (March 10, 2010)

77 *Dissipation in turbulent flows*, Mathematics Colloquium, Drexel University (November 19, 2009)

78 *Uniqueness in the boundary inverse problem for elasticity*, PDE Seminar, Georgia Institute of Technology (November 11, 2008)

79 *Dissipation in turbulent flows*, Colloquium, Center for Applied Mathematical Sciences, University of Southern California (October 20, 2008)

80 *Dissipation in turbulent flows*, Mathematics Colloquium, University of California, Santa Cruz, (October 14, 2008)

81 *Incompressible Fluid Flow in the Zero Viscosity Limit*, Scattering and Spectral Theory Seminar, Purdue University, West Lafayette (April 3, 2008)

82 *On the vanishing viscosity limit for incompressible fluids*, PDE/Applied Math Seminar, Indiana University, Bloomington (March 24, 2008)

83 *On uniqueness in an inverse problem for anisotropic elastic media* (in Italian), Analysis Seminar, State University, Florence, Italy, (January 11, 2008)

84 *Vanishing viscosity limit for 2D flows inside an unsteadily rotating circle*, Analysis Seminar, University of Warwick, Coventry, UK (August 1, 2007)

85 *On the regularity and self-similarity of solutions to the 3D Navier-Stokes equations*, PDE Seminar, Ohio State University (March 7, 2007)

86 *On unique determination of elastic parameters for anisotropic elastic media from dynamic boundary measurements*, Analysis Seminar, University of Southern California (November 28, 2006)

87 *Vanishing viscosity limit for 2D flows in an unsteadily rotating circle*, Applied Mathematics Seminar, University of California, Irvine (November 27, 2006)

88 *Some harmonic analysis results for the Euler and Navier-Stokes equations*, Fluid Mechanics Seminar, UniCamp, Campinas, Brazil (May 30, 2006)

89 *Some uniqueness results in the inverse problem for anisotropic elastic media*, Applied Mathematics Seminar, University of Delaware, Newark (November 15, 2005)

90 *Irregular transport and enstrophy dissipation in two-dimensional incompressible flows*, Analysis Seminar, Princeton University (October 6, 2005)

91 *Enstrophy dissipation and irregular transport in two-dimensional incompressible flows*, Applied Mathematics Seminar, S.I.S.S.A., Trieste, Italy (July 19, 2005)

92 *Uniqueness and Nonuniqueness in the Inverse Problems for Anisotropic Elastic Media*, PDE Seminar, Brown University (April 22, 2005)

93 *Enstrophy dissipation for two-dimensional incompressible flows*, Applied Mathematics and Analysis Seminar, Duke University (February 28, 2005)

94 *Enstrophy dissipation in 2D turbulence*, Analysis Seminar, Cornell University (March 15, 2004)

95 *The Navier-Stokes equations in spaces of Besov-type*, Mathematics Department Colloquium, Universidade Federal de SÃo Carlos, São Carlos, Brazil (August 28, 2002)

96 Minicourse *The Navier-Stokes equation in critical spaces*, UNICAMP, Campinas, Brazil (August 12, 14, 19, 2002)

97 *Mild Solutions to the Navier-Stokes equation and Besov-Morrey spaces* (in Italian), Applied Mathematics Seminar, Universitá Statale di Milano, Milan, Italy (July 12, 2002)

98 *A class of function spaces and the Navier-Stokes equation*, PDE Seminar, University of Minnesota (April 3, 2002)

99 *Function Spaces and Non-linear PDEs*, Analysis Seminar, University of California, Berkeley (November 27, 2001)

100 *Pseudo-differential calculus in Besov-like spaces*, Analysis Seminar, Brown University (April 25, 2001)

101 Applied Analysis & Computation Seminar, University of Massachusetts at Amherst, April 3, 2001.

102 Analysis Seminar, Yale University, September 13, 2000.

Talks at Conferences and Professional Meetings,

1 *Mixing, Transport, and Enhanced dissipation by Incompressible Flows*, AMS Special Session on Stochastic Methods in Fluid Mechanics, AMS Spring Eastern Meeting, Washington, DC, April 6-7, 2024.

2 *Mixing in fluids: irregular transport, enhanced dissipation, and applications*, PIs Meeting - Simons Collaboration on Wave Turbulence, Courant Institute, NYU, New York, NY, November 27, 2023 - November 30, 2023.

3 *On the Euler equations with in-flow and out-flow boundary conditions*, VI Workshop on Fluids and PDEs, University of Campinas, Campinas, SP, Brazil, October 23, 2023 - October 27, 2023

4 *The vanishing viscosity limit in porous media*, Workshop "Classical and Quantum Mechanical Models of Many-Particle Systems", MFO (Oberwolfach Research Institute for Mathematics), Oberwolfach, Germany, Sep 3-8, 2023.

5 *Boundary layers for a viscous fluid in a corner domain*, Session "Theory, numerics and data driven methods for fluids", 10th ICIAM, International Council for Industrial and Applied Mathematics, Waseda University, Tokyo, Japan, August 20, 2023 - August 25, 2023

6 *Loss of Regularity for Transport Equations*, Mathematical Problems in Fluid Dynamics, part 2, MSRI/SLMath, Berkeley, July 17-August 11, 2023.

7 *Mixing in fluids: irregular transport, enhanced dissipation, and applications* (Plenary talk), 14th ISAAC Congress, USP, Ribeirão Preto, Brazil, July 17-21, 2023.

8 *Direct and Inverse Problems for Elastic Dislocations in Geophysics*, Minisymposium "Recent Advances in Numerical Methods for Poromechanics", 2023 SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS23), Bergen, Norway, June 19-22, 2023.

9 *Shape derivative for an inverse problem in fault monitoring*, Math+X Symposium. Hella, Iceland, May 29-June 1, 2023.

10 Global existence for the 2D Kuramoto-Sivashinsky equation, Second Drexel Waves Workshop, Drexel University, Philadelphia, PA, March 30-31, 2023.

11 *Mixing and enhanced dissipation*, Workshop "Analysis of fluid dynamical PDEs", RIMS, Kyoto, Japan, March 11-15, 2023.

12 *Irregular transport and loss of regularity for transport equations*, Workshop "Women in dispersive equations", BIRS, Banff, Canada, February 6-10, 2023.

13 *Boundary layers for a viscous fluid in a corner domain*, AWM Special Session on Recent Developments in the Analysis of Local and Nonlocal PDEs, Joint Mathematics Meetings, Boston, MA, January 5-9, 2023.

14 *Shape derivative for an inverse problem in fault monitoring*, Workshop "Inverse Problems in the Desert", NYU-Abu Dhabi, Abu Dhabi, December 19-22, 2022.

15 *Enhanced dissipation for flows with circular symmetry*, Special Session on Deterministic and Stochastic PDEs: Theoretical and Numerical Analyses, AMS Southeastern Sectional Meeting, Chattanooga, TN, October 15-16, 2022.

16 *Boundary layers and the vanishing viscosity limit for incompressible flows* (plenary talk), SIAM Central States Session, Stillwater, Oklahoma, October 1-2, 2022.

17 *On Euler equations with in-flow and out-flow boundary conditions*, Minisymposium "Analysis and Applications of PDEs Modeling Fluids, SIAM Central States Session, Stillwater, Oklahoma, October 1-2, 2022.

18 *Mixing in Fluids: Irregular Transport, Enhanced Dissipation, and Consequences* (plenary talk), SIAM Conference on Nonlinear Waves and Coherent Structures (NWCS22), University of Bremen, Germany, August 29-September 2, 2022.

19 *Irregular transport and loss of regularity for transport equations*, Workshop "Small Scale Dynamics in Fluid Motion", Simons Center, SUNY-Stony Brook, June 20-24, 2022.

20 *Loss of regularity for transport equations and optimal mixing*, Third International Conference on Mathematics and Statistics, American University of Sharjah, Sharjah, UAE, February 6-9, 2020.

21 *A Sharp Embedding Result Arising from a Fluid-Structure Interaction Problem*, Minisymposium "Recent Developments on Analysis and Computations in Fluid Dynamics", SIAM Conference on Analysis of PDEs, La Quinta, CA, December 10-14, 2019.

22 *Optimal Mixing in Incompressible Flows and Irregular Transport* (3-hour keynote minicourse), Winter School "Gradient Flows and Variational Methods in PDEs", Ulm University, Ulm, Germany, November 25-29, 2019.

23 *Boundary layers and the vanishing viscosity limit for incompressible flows*, Conference on "Recent Advances in Fluid dynamics and Nonlinear Dynamics", Chengdu, China, June 3-5, 2019.

24 *A sharp embedding result arising from a fluid-structure interaction problem*, Special Session "Advances in Mathematical Fluid Mechanics", AMS Sectional Meeting, University of Hawaii, Honolulu, March 22-24, 2019.

25 *On the two-dimensional Kuramoto-Sivashinsky equation*, Special Session "Mathematical Analysis of Fluid Mechanics", Joint Mathematics Meetings, Baltimore, MD, January 16-19, 2019.

26 *Boundary layers and the vanishing viscosity limit in incompressible flows*, Mid-Atlantic Analysis Seminar, Virginia Tech, Blacksburg, VA, November 9-11, 2018.

27 *Optimal mixing and irregular transport by incompressible flows* (plenary talk), Workshop for Women in Differential Equations, UF-ABC, Santo Andre', Brazil, July 25-29, 2018.

28 *On the two-dimensional Kuramoto-Sivashinsky equation*, AIMS, Session "Analysis of nonlinear flows", Taipei, Taiwan, July 5-9, 2018.

29 *Boundary layers in incompressible flows*, Workshop on Mathematical fine structures in fluid dynamics, Intensive Program on Fluids and Waves, Gran Sasso Science institute, l' Aquila, Italy, June 11-15, 2018.

30 *Effective viscosity in dilute suspensions*, Conference on Multiscale Problems in Materials and Biology, Fields Institute, Toronto, Canada, June 4-7, 2018.

31 *On the vanishing viscosity limit in incompressible flows* (plenary talk), International Conference on Mathematical Fluid Dynamics, Henan Polytechnic University, Jiaozuo, China, May 26-27, 2018.

32 *On boundary layers for incompressible flows under no-slip boundary condition*, Workshop on Mathematical Fluid Dynamics, Bad Boll, Germany, from May 7-11, 2018.

33 *The vanishing viscosity limit in porous media*, Workshop "Mathematical Analysis of Viscous Incompressible Fluids", RIMS, Kyoto, Japan, December 4-6, 2017.

34 *Boundary and interface problems on polyhedral domains*, Workshop on Analysis and PDE, Leibniz Universität, Hannover, Germany, October 4-6, 2017.

35 *Vorticity concentration in the vanishing viscosity limit*, Special Session on Nonlocal PDEs in Fluid Dynamics, AMS Fall Western Meeting, Denton, TX, September 9-10, 2017.

36 *The vanishing viscosity limit for an Oseen-type equation*, Special Session "Incompressible Fluid Dynamics",Mathematical Congress of the Americas, Montreal, July 24-28, 2017.

37 *On the two-dimensional Kuramoto-Sivashinsky equation*, Special Session "Equations of Fluid Mechanics: Analysis", Mathematical Congress of the Americas, Montreal, July 24-28, 2017.

38 *Mixing and transport by incompressible flows* (Plenary Talk), KUMUNU 2017 Conference, University of Nebraska, Lincoln, April 22-23, 2017.

39 *The vanishing viscosity limit in porous media*, Minisymposium "Recent progress in the mathematical theory of fluid dynamics", British Applied Mathematics Colloquium, University of Surrey, April 10-12, 2017.

40 *The vanishing viscosity limit in porous media*, Workshop "Dynamics of Small Scales in Fluids", ICERM, Brown University, February 13-17, 2017.

41 *Loss of regularity for transport equations with rough velocities*, Workshop "Current Developments in Mathematical Fluid Dynamics: Regularity, Instabilities, and Turbulence", ICERM, Brown University, January 24-27, 2017.

42 *On the solution semigroup for a degenerate Fokker-Planck equation*, Special Session on Nonlinear and Stochastic Partial Differential Equations, AMS Fall Western Meeting, Denver, CO, October 8-9, 2016.

43 *Optimal mixing in incompressible flows*, XVI International Conference on Hyperbolic Problems Theory, Numerics, Applications (HYP 16). Aachen (Germany), August 1-5, 2016.

44 *The vanishing viscosity limit in porous media*, Minisymposium "Recent Progress on Inviscid Fluid Dynamics", SIAM Annual Meeting, Boston, MA, July 11-16, 2016.

45 *Ensemble Dynamics and Bred Vectors*, Workshop "Dynamics and Differential Equations", Institute for Mathematics and its Applications (IMA), Minneapolis, MN, June 22-25, 2016.

46 *Optimal mixing and stirring in incompressible flows*, Conference "Challenges in Nonequilibrium Statistical Physics and Fluid Dynamics", Brigham-Young university, Provo, UT, May 22-24, 2016.

47 *Heat kernels, maximal regularity, and semi-linear parabolic equations on non-compact manifolds* (keynote talk), International Conference on Evolution Equations, Vanderbilt University, Nashville, TN, May 16-20, 2016.

48 *Mixed-boundary value and transmission problems on generalized polyhedral domains*, Conference "Evolution Equations on Singular Spaces", Centre international des Rencontres Mathematiques (CIRM), Luminy, Marseilles, France, April 25-29, 2016.

49 *The vanishing viscosity limit in porous media*, Workshop on "Euler and Navier-Stokes Equations and Connected Topics", Wolfang Pauli Institute, Vienna, Austria, December 14-18, 2015.

50 *Optimal Mixing Rates*, Minisymposium "Recent Developments in the Analysis of the Navier-Stokes, Euler, and Related Models", SIAM APDE Conference, Society for Industrial and Applied Mathematics, Scottsdale, AZ, December 7-10, 2015.

51 *The vanishing viscosity limit in porous media*, Minisymposium "Singular Perturbations and Boundary Layers - Theory and Numerical Aspects", SIAM APDE Conference, Society for Industrial and Applied Mathematics, Scottsdale, AZ, December 7-10, 2015.

52 *Optimal mixing by incompressible flows*, Workshop on "Mathematics of Geophysical Flows and Turbulence", Fudan University, Shanghai, China, August 17-19, 2015.

53 *Mixing and loss of regularity for transport equations*, Workshop "Mathematical aspects of Hydrodynamics", Oberwolfach, Germany, August 5-9, 2015.

54 *Elliptic Equations on Polyhedral Domains*, Workshop for Women in Analysis and PDE, Institute for Mathematics and its Applications, Minneapolis, MN, May 28-31, 2015.

55 *On helically-symmetric incompressible flows*, Special Session on Nonlinear Elliptic and Parabolic PDEs, AMS Spring Western Meeting, Las Vegas, NV, April 18-19, 2015.

56 *The vanishing viscosity limit in porous media*, Special Session "Mathematical Fluid Dynamics and Turbulence", Spring Eastern Meeting, Washington, DC, March 7-8, 2015.

57 *Mixing and Transport by Incompressible Flows*, SIAM Minisymposium on Partial Differential Equations and Applications, Joint Mathematics Meetings, San Antonio, Jan 10-13, 2015.

58 *Optimal mixing by Incompressible flows* (2-hour minicourse), NSF-CBMS Regional Research Conference in the Mathematical Sciences, Oklahoma State University, July 21-25, 2014.

59 *Planar limits of 3D helical flows*, Conference "Advances in Mathematical Fluid Mechanics", Lison, Portugal, June 30- July 4, 2014,

60 *Boundary layers for non-linear flows in pipes and channels*, Mathematical Hydrodynamics Conference, École Normale Superieure, Paris, France, June 16-20, 2014.

61 *Green's functions for Fokker-Planck equations*, Special Session on Stochastics and PDEs, AMS Spring Western Meeting, Albuquerque, NM, April 5-6, 2014.

62 *Vorticity concentration at the boundary for Taylor-Couette flows in the zero viscosity limit*, SIAM Minisymposium on Turbulence and Mixing in Fluids: Analysis and Applications, Joint Mathematics Meetings, Baltimore, MD, Jannuary 15-18, 2014.

63 *Planar limits of 3D helical flows*, Minisymposium "Recent Progress on the Incompressible Euler Equations", SIAM APDE Conference, Lake Buena Vista, FL, December 7-10, 2013.

64 *Boundary layers in non-linear pipe and channel flows*, Clifford Lectures, Tulane University, New Orleans, LA, November 8-11, 2013.

65 *Green function methods for pricing of options*, Special Session on Partial Differential Equations, Stochastic Analysis, and Applications to Mathematical Finance, AMS Fall Eastern Meeting, Philadelphia, PA, October 12-13, 2013.

66 *Well-posedness and regularity for elliptic equations on polyhedral domains*, AMS Fall Southeastern Sectional Meeting, Louisville, KY, October 5-6, 2013.

67 *An existence result for a fluid-structure interaction model*, Special Session "PDE and Incompressible Fluid Flow", Congress of the Americas, Guanajuato, Mexico, August 4-9, 2013.

68 *Boundary layers for non-linear flows in pipes and channels*, Workshop "Geophysical Fluid Dynamics", Oberwolfach, Germany, February 17-23, 2013.

69 *Boundary layers for a class of non-linear flows in pipes and channels*, Workshop on Complex Fluids, Darmstadt, July 10-13, 2012.

70 *Vanishing Viscosity Limit for a certain class of channel flows*, Special Session on Singular Perturbations and Boundary Layer Theory, and *Effective viscosity in dilute suspensions*, Special Session on Analysis and Numerics of Differential Equations and Dynamical Systems in Mathematical Fluid Mechanics, 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications Orlando, July 1 - 5, 2012.

71 *Enstrophy dissipation in 2D incompressible fluids*, Workshop on Geometry and Dynamics of Fluid, CRM, Montreal, May 21-25, 2012.

72 *Boundary layer analysis for certain classes of nonlinear incompressible flows*, Minisymposium "Recent advances on nonlinear PDEs and their dynamics", International Conference on Structural Nonlinear Dynamics and Diagnosis, Marrakech, Morocco, April 30-May 2, 2012.

73 *Boundary layer analysis and vanishing viscosity limit for pipe flows*, Minisymposium "Analysis of partial differential equations arising in fluid dynamics", SIAM APDE Conference, San Diego, November 14-17, 2011.

74 *Boundary Layers for channel and pipe flows*, Session on nonlinear Wave Phenomena, AWM Anniversary Conference, Providence, September 17-18, 2011.

75 *Ensemble Dynamics and Bred Vectors*, Plenary Invited Talk, ICDEA, Trois-Rivières, Canada, July 25-29, 2011.

76 *Boundary-layer analysis for channel flows*, Minisymposium "Fluid-Structure Interaction", ICIAM, Vancouver, July 18-22, 2011.

77 *Effective viscosity in dilute suspensions*, Xi'an Conference Celebrating Professor Constantin's 60th Birthday, Xi'an, China, June 13-17, 2011.

78 *Explicit parametrices for time-dependent Fokker-Planck equations*, Special Session "Deterministic and Stochastic PDEs", AMS Fall Central Meeting, Notre Dame, November 5-7, 2010.

79 *Boundary layer analysis for 3D plane-parallel channel flows*, Special Session "Applications of Nonlinear PDEs", AMS Southwestern Meeting, Los Angeles, October 9-10, 2010.

80 *The vanishing viscosity limit in channel and pipe flows*, Conference "Recent Developments in Nonlinear Evolution Equations" Weizmann Institute, Rehovot, Israel, July 23-29, 2010

81 *An approximate Green-function algorithm for solving Fokker-Planck equations*, Special Session "Differential Equations and Applications", Spring Central AMS Meeting, St. Paul, MN, April 9-10 2010

82 *Vanishing viscosity limit and related singular perturbation problems*, Minisymposium "PDE and Fluid Dynamics", SIAM APDE Meeting, Miami, FL, Dec 7-10, 2009

83 *On the vanishing viscosity limit in incompressible flows*, Special Session " Fluid Mechanics", Fall SouthWestern AMS Meeting, Riverside, CA, Nov 7-8, 2009

84 *Approximate solutions to parabolic equations*, Special Session "Harmonic analysis and PDE", Fall SouthCentral AMS Meeting, Waco, TX, Oct 16-17, 2009

85 *Determination of material properties from boundary measurements in anisotropic elastic media*, Minisymposium "Inverse Problems in Elasticity" AIP 09, Vienna, July 20, 2009.

86 *Vorticity concentration for 2D circularly symmetric flows in the presence of moving boundaries*, Special Session "Advances in Classical and Geophysical Fluid Dynamics", AMS Spring Central Meeting, Bloomington, Indiana (April 6, 2008)

87 *Vanishing viscosity limit for flow in a channel and related singular perturbation problems*, Special Session "Harmonic Analysis Methods in Mathematical Fluid Mechanics", AMS Spring Central Meeting, Bloomington, Indiana (April 5, 2008)

88 *Enstrophy dissipation in 2D incompressible fluids*, Special Session "Recent developments in 2D turbulence", AMS Fall Southwestern Meeting, Albuquerque, New Mexico (October 14, 2007)

89 *Vanishing viscosity limit in boundary-driven 2D flow*, Special Session "The Euler and Navier-Stokes", AMS Fall Central Meeting, Chicago, Illinois (October 5, 2007)

90 *On uniqueness in the boundary inverse problem for anisotropic elastodynamics*, Minisymposium "Inverse Problems for Systems", International Conference "Applied Inverse Problems 07", Vancouver, Canada (June 28, 2007)

91 *On the energy spectrum for weak solutions of the Navier-Stokes equation*, Special Session on Harmonic Analysis and Partial Differential Equations, AMS Southeastern Meeting, Miami, Florida (April 1, 2006)

92 *Harmonic Analysis for the Navier-Stokes and Euler equations*, Workshop " Euler equations: theory and numerical simulations", Wolfgang Pauli Institute, Vienna, Austria (March 14, 15, 2006)

93 *Nonuniqueness in the parameter identification for anisotropic elastodynamics*, Special Session on Inverse Problems, AMS Fall Southeastern Meeting, Vanderbilt University, Nashville, Tennessee (October 17, 2004)

94 *Enstrophy dissipation for two-dimensional incompressible flows*, Workshop "Analytical and Computational Challenges of Incompressible Flows at High Reynolds Number", CSCAMM, College Park, Maryland (May 18, 2004)

95 *Enstrophy dissipation in 2D Turbulence*, Special Session on Fluid Problems and Related Questions, AMS Western Meeting, University of Southern California, Los Angeles, California (April 3, 2004)

96 *Mild solutions to the Navier-Stokes equation in Besov-Morrey spaces*, Mini-symposium "Analysis and incompressible fluid flow", AMAM 2003, Nice, France, (February 11, 2003)

97 *Analysis in Besov-Morrey Spaces and applications to the Navier-Stokes equation*, Special Session on Function Spaces, Singular Integral and Applications to PDEs, AMS Southeastern Fall Meeting, Orlando, Florida (November 10, 2002)

98 *The Navier-Stokes equation in distribution spaces*, Special Session " Mathematical Fluid Dynamics", 2002 UAB International Conference on Differential Equations and Mathematical Physics, University of Alabama, Birmingham, Alabama (March 29, 2002)

99 Special Session "Harmonic Analysis and PDE", AMS Fall Western Section Meeting, University of California at Irvine, November 11, 2001.

TEACHING AND SERVICE

External Service

- **Member**, SIAM PDE Webinar Selection Committee (2020-2024) and **Chair** (2023-2024).
- **Member**, AWM-Ruth I. Michler Memorial Prize Selection Committee (2022-2025).
- **Chair**, SIAG/APDE Nominating Committee (2022).
- **Member**, Editorial Boards Committee, American Mathematical Society (2021-2023), and **Chair** (2022).
- **Member**, IMA Prize Selection Committee (2019).
- **Member**, SIAM Nominating Committee (2017-2019).
- **Member**, Council of the American Mathematical Society, (2016-2019).
- **Member**, Committee on Science Policy, American Mathematical Society, (2016-2019).
- **Member**, SIAG/APDE Prize Selection Committee (2017).
- **Member**, AWM-Sadosky Research Prize Selection Committee (2016-2023).
- **Member**, Stefan Bergman Trust Fund Prize Committee, American Mathematical Society (2016-2019), and **Chair** (2018).
- **Member**, SIAM Coordinating Committee of the Joint Mathematics Meetings (2016-2018), and **Chair** (2017).
- **Secretary**, Activity Group on Analysis of Partial Differential Equations, Society for Industrial and Applied Mathematics (2013-2014).
- **Member**, Committee on Meetings and Conferences, American Mathematical Society (2012-2014).
- **Member**, Committee for the AMS-Simon Travel Grants (2011-2013).
- **Member** and **Chair**, Committee for the NSF-AWM Travel Grants (2012, February 2013).
- **Member** (2009-2010) and **Chair** (2011), Committee for the AMS-MAA-SIAM Morgan Prize for Outstanding Research done by an Undergraduate.

Editorship and Referee Activities

- **Editorial Board Member**: *Analysis & PDE* (2021-present), *Applied Mathematics and Optimization* (2023-present), *Journal of Mathematical Analysis and Applications* (2015-2019), *journal of Mathematical Fluid Mechanics* (2021-present), *Multiscale Modeling and Simulations* (2020-present), *Nonlinearity* (2019-present), *Nonlinear Differential Equations and Applications NoDEA* (2020-present), *Physica D* (2019-present), *Research in the Mathematical Sciences* (2022-present), *SIAM Journal on Mathematical Analysis* (2015-present).

- **IOP Ebooks Editorial Advisory Board** (2019-2022).
- **Panel** and **External Reviewer** for the National Science Foundation. **Reviewer** for the US Civilian Research and Development Foundation, for the Austrian Academy of Sciences, for the Canadian Fonds Québécois de la Recherche sur la Nature et les Technologies, for Canada MITACS and NSERC, for the Fields Institute, for the Polish National Science Centre, and for the Laboratory of Excellence NUMEV, University of Montpellier.
- **Referee** for: *Acta Applicanda Mathematicae*, *AMS Book Series*, *Advances in Mathematics*, *Annals of Mathematics*, *Annales de l'Institut Fourier*, *Applicable Analysis*, *Applied Mathematics and Optimization*, *Astérisque*, *Asymptotic Analysis*, *Archive for Rational Mechanics and Analysis*, *Canadian Mathematical Bulletin*, *Central European Journal of Mathematics*, *Communications in Mathematical Physics*, *Communications in Mathematical Sciences*, *Communications in Partial Differential Equations*, *Communications on Pure and Applied Analysis*, *Communications on Pure and Applied Mathematics*, *Differential and Integral Equations*, *Discrete and Continuous Dynamical Systems Series-A*, *Duke Mathematical Journal*, *Fluids*, *Functiones et Approximatio*, *European Journal of Mathematics*, *Illinois Journal of Mathematics*, *Indiana university Mathematics Journal*, *Interfaces and Free Boundaries*, *International Journal of Mathematics and Mathematical Sciences*, *International Mathematics Research Notices*, *International Journal of Theoretical and Applied Finance*, *Inventiones*, *Japanese Journal of Mathematics*, *Journal de Mathématiques Pures et Appliquees*, *Journal of Differential Equations*, *Journal of Dynamics and Differetial Equations*, *Journal of Fluid Mechanics*, *Journal of Mathematical Analysis and Applications*, *Journal of Mathematical Physics*, *Journal of Nonlinear Science*, *Journal of the European Mathematical Society*, *Mathematical Methods in the Applied Sciences*, *Mathematical Models and Methods in the Applied Sciences*, *Mathematics in Engeneering*, *Michigan Mathematical Journal*, *Memoirs of the American Mathematical Society*, *Numerische Mathematik*, *Nonlinearity*, *Physica D*, *Philosophical Transactions A*, *Potential Analysis*, *Proceedings of the Royal society of Edinburgh*, *Pure and Applied Analysis*, *Quarterly Journal of Mechanics and Applied Mathematics*, *Rendiconti dell'Istituto di Matematica-Trieste*, *Revista Matemática Iberoamericana*, *SIAM Journal on Applied Mathematics*, *SIAM Journal on Applied Dynamical Systems*, *SIAM Joirnal on Control and Optimization*, *SIAM Journal on Mathematical Analysis*, *Transactions of the American Mathematical Society*, *Zeitschrift für angewandte Mathematik und Physik*.
- **Reviewer** for the American Mathematical Society *Mathematical Reviews* (2003–present).

Internal Service and Teaching

- **Department Service:** Associate Head for Administration (July 2019-present, on leave 2023-2024);
  Personnel, Policy, Research Support Committees, ex-officio (2019-present, on leave 2023-2024);
  co-Associate Head for Graduate Studies (July 2017-2018);
  GTA Oversight Committee, ex-officio (2017-2018);
  Graduate Studies Committee, ex-officio (2017-2018);
  Computer Committee (2014-2020), Chair 2015-2016;
  Promotion and Tenure Committee (2013-2014, 2015-2017);

Policy Committee (2010-2013);
Personnel Committee (2009-2012, and 2017-2018, ex-officio);
Climate and Diversity Committee Co-Chair (2006-2009);
Qualifying Examinations Board(2008-2010, and Chair, 2017-2018);
Library Committee (2004-2007).

- **University and College Service:** Organizing Committee, College of Science "Frontiers of Science" Public Seminar Series (2021-2022)
College Selection Committee for the Evan Pugh University Professorship, (2021)
College representative to the Graduate Council (2018-2020);
Member, Graduate Council Committee on Graduate Research (2019-2020);
Member, Graduate Council Joint Curricular Committee (2018-2019);
Sabbatical Leave College Committee (Fall 2017);
College of Science IT Steering Committee (2011-2013, 2016-present);
College representative to the Faculty Senate (2014-2018);
Member, Senate Committee on Libraries and Information Technology (2014-2018; Vice-Chair 2016-2017);
Member, Special Senate Committee Assessing First-Year Engagement Plan (2015-2016);
Member of University Task Force for Engagement with Brazil (2011-2013).
- **Instructor** for graduate (Functional Analysis, Harmonic Analysis, Fluid Mechanics, Real & Complex Analysis, PDEs) and undergraduate courses (Advanced Calculus for Engineers, Calculus sequence, Fourier Series & PDEs, Real Analysis, Algebra for Teachers, ODEs)

Organization of Conferences and Meetings

- Co-Chair, 2024 SIAM Annual Meeting, to be held July 19-23, 204, Spokane, WA.
- Scientific Committee, " VI Workshop on Fluids and PDE", Campinas, Brazil, October 23-27, 2023.
- Co-Organizer, Workshop "Small scale dynamics in incompressible fluid flows", American Institute of Mathematics, Pasadena, CA, November 6-10, 2023.
- Co-Organizer, Workshop "Fluid Equations, A Paradigm for Complexity: Regularity vs Blow-up, Deterministic vs Stochastic", BIRS, Banff, Canada, October 1-6, 2023.
- Organizing Committee, SIAM PDE Conference, Berlin Germany, March 14-18, 2022.
- Scientific Committee, Program "Mathematical aspects of turbulence: where do we stand?", Isaac Newton Institute, Cambridge University, January 4-June 24, 2022.
- Co-organizer, Workshop "Transport, Fluids and Mixing", Centro Ennio De Giorgi, Pisa, Italy, January 24-28, 2022.
- Co-organizer, Workshop Transport and Mixing in Complex and Turbulent Flows, Institute for Pure and Applied Mathematics (IPAM), UCLA, January 11-15, 2021.
- Lead Organizer, Workshop "Connections for Women: Mathematical problems in fluid dynamics", January 20-22, 2021.
- Scientific Committee, V Workshop on Fluids and PDE, University of Campinas, Campinas, Brazil, September 20-October 1st, 2021.

- Co-organizer, Workshop "Mathematical Aspects of Hydrodynamics", MFO, Oberwolfach, Germany, August 18-23, 2019.
- Organizing Committee, HYP 2018 (August 2016-December 2018).
- Co-organizer (with G. Crippa, A. Alberti), Workshop "Irregular Transport: Analysis and Applications", University of Basel, Basel, Switzerland, June 26-30, 2017.
- Co-organizer (with I. Aronson, A. Bressan, L. Berlyand), Workshop "Frontiers of Interdisciplinary Mathematics", Penn State University, May 9-11, 2017.
- Contact Organizer, Workshop "Recent Advances in Hydrodynamics", BIRS, Banff, Canada, June 6-10, 2016.
- Organizing Committee, Summer School on Transport, Fluids and Mixing (an activity of CIRM), Levico Terme (Trento), Italy, June 20-24, 2015.
- Organizing Committee, School "Around vortices: from classical to quantum mechanics", IMPA, Rio, Brazil, March 12-21, 2014.
- Organizing Committee, Conference on Partial Differential Equations: geometric and analytic aspects, UNC, Chapel Hill, July 16-20, 2012.
- Scientific Committee, 3rd Workshop on Fluids and PDE, UniCamp, Campinas, Brazil, June 27-July 1, 2011.
- Organized:
  - Session "Singular problems in fluid mechanics", International Conference on Evolution Equations, Vanderbilt University, Nashville, TN (May 16-20, 2016);
  - SIAM Minisymposium on Applied analysis of partial differential equations, with G. Iyer, Joint Mathematics Meetings, Seattle, WA, (January 6-9, 2016);
  - Special Session "PDEs in Continuum Mechanics", with M. Gualdani, 2015 AWM Research Symposium, College Pak, MD (April 11-12, 2015);
  - Workshop "Mathematical Analysis of Turbulence", Long Program on the Mathematics of Turbulence, IPAM, Los Angeles, CA (September 29 - October 3, 2014) with P. Constantin, G. Eyink, and M. Jolly;
  - Minisymposium "Deterministic and Stochastic Methods in Fluid Mechanics", with H. Bessaih and E. Lunasin, SIAM APDE Conference, Lake Buena Vista, FL (December 7-10, 2013);
  -Special Session "Analysis of PDEs in Newtonian and Non-Newtonian Fluid Mechanics", with Evelyn Lunasin, AWM Research Symposium, Santa Clara, CA (March 16-17, 2013);
  - Minisymposium "Advances in Geophysical Flows", with N. Balci and G. Sell, SIAM APDE Conference, San Diego (November 13-17, 2011);
  - Special Session "Topics in Mathematical Finance", with V. Nistor, N. Costanzino, AMS Fall Eastern Meeting, University Park, PA (October 24-25, 2009);
  -Special Session "Nonlinear PDEs and applications", with Igor Kukavica, AMS spring Central Meeting, Urbana, Illinois (March 28-29, 2009);
  - Minisymposium "Elliptic PDEs on Singular Domains: Computation and Theory", SIAM APDE, with Victor Nistor, Mesa, Arizona (Dec 10, 2007);
  - Special Session "Microlocal Analysis and PDE (in honor of Michael E. Taylor 60th birthday)", AMS Spring Southeastern Meeting, with Martin Dindos, Davidson, North Carolina (March 3-4, 2007);

- Workshop "Partial differential equations on non-compact manifolds", with Victor Nistor and Juan Gil, State College, Pennsylvania (December 14-15, 2002);

- Supervised NSF VIGRE Summer Program in Mathematics for undergraduates, Yale University (May 15-July 15, 2001).

PROFESSIONAL SOCIETIES

2023-present **Italian Mathematical Union**
2021-present **Association for Mathematical Research**
2022-present **Inverse Problems International Association** (newly formed)
2003-present **Society for Industrial and Applied Mathematics**
2002-present **Association for Women in Mathematics**
2000-present **American Mathematical Society**