ANDRÉ NACHBIN

Curriculum Vitae
(last update: February 2024)

Department of Mathematical Sciences
Worcester Polytechnic Institute
100 Institute Road, Worcester, MA, 01609, USA
https://www.wpi.edu/people/faculty/anachbin
email: anachbin@wpi.edu

===== Employment =====

WPI: Harold J. Gay Professor of Mathematical Sciences, 2023-present.
IMPA: Associate-Full Professor of Mathematics, 1994-2023.
Massachusetts Inst. of Tech. (MIT): Visiting Professor, Math. Dept., 2015-16.
New Jersey Inst. of Tech. (NJIT): Assistant Prof. of Mathematics, 1992-1994.
Ohio State University: Instructor, Mathematics Department, 1989-1992.

===== Degrees =====

Ph.D. in Mathematics, Courant Institute, New York University, 1989.

Thesis Title: *'Reflection and transmission of water waves over rough bottoms.'*
Advisor: Prof. George Papanicolaou

M.Sc., Civil Engineering, COPPE, Federal Univ. of Rio de Janeiro, Brazil, 1984.

Thesis Title: *'Refraction and diffraction of waves by offshore structures.'*
Advisor: Prof. Luiz Carlos Wrobel.   (*thesis in Portuguese*)

B.Sc., Civil Engineering, Federal University of Rio de Janeiro, Brazil, 1980.

===== Awards and Honors =====

• Co-Chair of the SIAM Nonlinear Waves and Coherent Structures meeting, held at the University of Bremen, Germany, August 2022.
• Member of the Brazilian Academy of Sciencies, 2014.
• David Parkin Visiting Professor of the University of Bath, UK. Visited the Dept. of Mathematical Sciences from September 2013 until February 2014.
• National Medal of Scientific Merit (Ordem Nacional do Mérito Científico/Comendador) granted by President Lula in 2006.
• NJIT Excellence in Teaching Award Nomination (Undergraduate Upper Division) by the Department of Mathematics, New Jersey Institute of Technology, 1994.

===== Special Committees =====

- 2023-2026 SIAM representative on the Math Council of the Americas (http://mcofamericas.org/).
- ICM 2022 Panel for section 15, Numerical Analysis and Scientific Computing.
- 2022-23 SIAM Fellow Canvassing Committee.
- Elected Program Director of the SIAM Activity Group on Nonlinear Waves and Coherent Structures, 2019–2020.
- Mathematics Coordinator for the Rio de Janeiro State Funding Agency, 2018–2023.
- Head of Planning and Projects Division (IMPA), 2018–2023.
- SIAM T. Brooke Benjamin Prize Selection Committee, 2016.
- Board of Advisors of IMPA, 2010–2018.
- Board of Advisors of the Rio de Janeiro State Funding Agency (FAPERJ), 2012–2015.
- National Research Council (CNPq), Math. Division's Committee, 2011–2013.
- Head of Graduate Studies at IMPA, 2008–2010.
- National Funding Agency(CAPES), Ministry of Education, Math. Division's Committee, 2004–2007.

===== Editorial Board =====

- Member of the Editorial Board of the *SIAM J. on Applied Mathematics*, **2003–2014**.
- Member of the Editorial Board of the *Computational and Applied Mathematics* journal of the Brazilian Comp. & Appl. Math. Soc. (SBMAC; by Springer-Verlag), **2007–2015**.
- Member of the Editorial Board of the *J. of Math. in Industry* (Springer) **2010– present**.

===== Publications =====

1. Nachbin, A. & Papanicolaou, G.C., Water waves in shallow channels of randomly varying depth, Mathematics of Random Media, Lectures in Applied Mathematics, AMS, v.27, p. 429-446, 1991.

2. Nachbin, A. & Papanicolaou, G.C., Boundary element method for long-time water wave propagation over rapidly varying bottom topography. Int. J. Num. Meth. Fluids v.14, p. 1347-1365, 1992.

3. Nachbin, A. & Papanicolaou, G.C., Water waves in shallow channels of rapidly varying depth. J. Fluid Mech., v.241, p. 311-332, 1992.

4. Nachbin, A. & Papanicolaou, G.C., Water waves in disordered media., Comp. Appl. Math., v.13, n. 3, p. 235-245, 1994.

5. Nachbin, A., The localization length of randomly-scattered water waves. J. Fluid Mech., v.296, p. 353-372, 1995.

6. Nachbin, A., Stability analysis of the generalized point vortex approximation, Phys. Flu, v. 8, n. 4, 1996.

7. Baker, G. & Nachbin, A., Stable methods for vortex sheet motion in the presence of surface tension. SIAM Journal of Scientific Computing, v. 19, n. 5, p. 1737-1766,

1998.

8. Correia, A. & Nachbin, A., Vetorização e estratégias numéricas na resolução das equações de águas rasas via MATLAB, Revista Matemática Universitária (Journal for College Mathematics) , SBM (Brazilian Math. Society), 2001.

9. Fouque, J. & Nachbin, A., Time-reversed refocusing of surface water waves. SIAM Multiscale Modeling and Simulation, v. 1, n. 4, p. 609-629, 2003.

10. Nachbin, A. & Sølna, K., Apparent diffusion due to topographic microstructure in shallow waters, Phys. Flu., v. 15, n. 1, p. 66-77, 2003.

11. Nachbin, A., A terrain-following Boussinesq system, SIAM J. Applied Mathematics, v. 63, n. 3, p. 905-922, 2003.

12. Artiles Roqueta, W. & Nachbin, A., Asymptotic nonlinear wave modeling through the Dirichlet-to-Neumann operator, Methods and Applications of Analysis (Hong Kong), Vol. 11, No. 4, pp. 475-492., 2004.

13. Artiles Roqueta, W & Nachbin, A., Nonlinear evolution of surface gravity waves over highly variable depth. Physical Review Letters, v. 93, p. 234501-1-234501-4, 2004.

14. Garnier, J. & Nachbin, A., The eddy viscosity for time-reversing waves in a dissipative environment. Physical Review Letters, Vol. 93, Vol. 15, 154501, 2004.

15. Fouque, JP., Garnier, J., Muñoz-Grajales, J. C. & Nachbin, A., Time-reversing solitary waves. Phys. Rev. Lett., vol. 92, No. 9, 094502, 2004.

16. Alfaro-Vigo, D. G., Fouque, JP., Garnier, J. & Nachbin, A., Robustness of time reversal for waves in time-dependent random media. Stochastic Process and Applications, 113, pp. 289-313, 2004.

17. Fouque, JP., Garnier, J. & Nachbin, A., Shock structure due to stochastic forcing and the time reversal of nonlinear waves, Physica D, Vol. 195, pp. 324-346, 2004.

18. Fouque, JP., Josselin Garnier, & Nachbin, A., Time reversal for dispersive waves in random media, SIAM J. Appl. Math., Vol. 64, No. 5, pp. 1810-1836, 2004.

19. Muñoz-Grajales, J. C & Nachbin, A., Dispersive wave attenuation due to orographic forcing. SIAM J. Appl. Math., Vol. 64, No.3, pp. 977-1001, 2004.

20. Fouque, JP.; Garnier, J.; Nachbin, A. &; Solna, K., Time reversal refocusing for point source in randomly layered media. Wave Motion, 42 (3), pp. 238-260, 2005.

21. Muñoz-Grajales, J. C. & Nachbin, A., Stiff microscale forcing and solitary wave refocusing. SIAM Multiscale Modeling and Simulation, Vol. 3, No. 3, pp. 680-705, 2005.

22. Garnier, J. & Nachbin, A., The eddy viscosity for gravity waves propagating over turbulent surfaces. Physics of Fluids, vol 18. 055101, 2006.

23. Muñoz-Grajales, J. C. & Nachbin, A., Improved Boussinesq-type equations for highly-variable depth. IMA Journal of Applied Mathematics, v. 71, p. 600-633, 2006.

24. Garnier, J., Muñoz-Grajales, J. C. & Nachbin, A., Effective behavior of solitary waves over random topography. (SIAM) Multiscale Modeling and Simulation, v. 6, p. 995-1025, 2007.

25. Garnier, J., Kraenkel, R. & Nachbin, A., Optimal Boussinesq model for shallow-water waves interacting with a microstructure. Physical Review. E, v. 76, p. 046311, 2007.

26. Nachbin, A., Choi, W., Nonlinear waves over highly variable topography. European Physical Journal Special Topics, v. 147, p. 113-132, 2007.

27. Wrobel, J.S., Nachbin, A. & Marchesin, D., Numerical simulation of injectivity loss in stratified reservoirs. Comm. Numerical Methods in Engineering, v. 23, p. 507-520, 2007.

28. Alfaro-Vigo, D.G., Correia, A. & Nachbin, A., Complete time-reversed refocusing in reflection with an acoustic Lagrangian model. Communications in Mathematical Sciences, v. 5, p. 161-185, 2007.

29. Ruiz de Zárate, A., & Nachbin, A., A reduced model for internal waves interacting with topography at intermediate depth. Communications in Mathematical Sciences, v. 6, p. 385-396, 2008.

30. Ruiz de Zárate, A, Alfaro-Vigo, D., Nachbin, A., & Choi, W., A Higher-Order Internal Wave Model Accounting for Large Bathymetric Variations, Studies in Applied Mathematics, v. 122, p. 275-294, 2009.

31. Nachbin, A., Discrete and continuous random water wave dynamics, Discrete and Continuous Dynamical Systems. Series A, v. 28, p. 1603-1633, 2010.

32. Fokas, A.S. & Nachbin, A., Water waves over a variable bottom: a nonlocal formulation and conformal mappings. J. Fluid Mech., v. 695, p. 288-309, 2012.

33. Nachbin, A. & Simões, V. S., Solitary waves in open channels with abrupt turns and branching points. J. Nonlin. Math. Physics, Vol. 19, Suppl. 1, 1240011, 2012.

34. Luz, A.M. & Nachbin, A., Wave packet defocusing due to a highly disordered bathymetry. Studies in Applied Math, v. 130, p. 393-416, 2013.

35. Alfaro-Vigo, D. G., Oliveira, S. P., Zárate, A. R. & Nachbin, A., Fully discrete stability and dispersion analysis for a linear dispersive internal wave model. Comput. Appl. Math., v. 33, p. 203-221, 2014.

36. Nachbin, A. & Ribeiro-Junior, R., A boundary integral formulation for particle trajectories in Stokes waves. Discrete and Continuous Dynamical Systems. Series A, v. 34, p. 3135-3153, 2014.

37. Milewski, P.A., Galeano-Rios, C.A., Nachbin, A. & Bush, J.W.M., Faraday Pilot-Wave Hydrodynamics: Modelling and Computation, J. Fluid Mech., v. 778, p. 361-388, 2015.

38. Nachbin, A. & Simões, V.S., Solitary waves in forked channel regions, J. Fluid. Mech., v. 777, p. 544-568, 2015.

39. Nachbin, A., A hydrodynamic pilot-wave: when Classic visits Quantum Mechanics. ICIAM Mathematical Intelligencer, Springer, 2015.

40. Ribeiro-Junior, R., Milewski P.A. & Nachbin, A., Flow structure beneath rotational water waves with stagnation points. J. Fluid Mech., v. 812, p. 792-814, 2017.

41. Nachbin, A., Milewski, P. & Bush, J. W., Tunneling with a hydrodynamic pilot-wave model. Phys. Rev. Fluids, v. 2, p. 034801, 2017.

42. Nachbin, A. & Ribeiro-Jr., R., Capturing the flow beneath water waves. Philo. Trans. Royal Soc. A-Math. Phys. Eng. Sci., v. 376, p. 20170098, 2018.

43. Andrade, D. & Nachbin, A., A three-dimensional Dirichlet-to-Neumann operator for water waves over topography, J. Fluid Mech., vol. 845, pp. 321–345, 2018.

44. Nachbin, A., Walking droplets correlated at a distance, Chaos, 28, 096110, 2018.

45. Andrade, D. and Nachbin, A., Two-dimensional surface wave propagation over arbitrary ridge-like topographies, SIAM J. Appl. Math, vol. 78, pp. 2465-2490, 2018.

46. Mailybaev, A.A. and Nachbin, A., Explosive ripple instability due to incipient wave breaking, J. Fluid Mech., vol. 863, pp. 876–892, 2019.

47. Flamarion, M., Milewski, P.A. and Nachbin, A., Rotational waves generated by current-topography interaction, Stud. Appl. Math, Vol. 142, pp. 433–464, 2019.

48. Nachbin, A., Modeling surface waves over highly variable topographies, in *Nonlinear Water Waves, An Interdisciplinary Interface*, Ed. by Henry, Kalimeris, Parau, Vanden-Broeck and Wahlén, v. 1, pp. 1-18, Birkhäuser, 2019.

49. Nachbin, A., Singular integration towards a spectrally accurate finite difference operator, arXiv:1906.12300v1, 2019.

50. Flamarion, M., Nachbin, A. and Ribeiro-Jr, R., Time-dependent Kelvin cat-eye structure due to current topography interaction, J. Fluid Mech., vol. 889, A11-1-A11-23, 2020.

51. Nachbin, A., Kuramoto-Like synchronization mediated through Faraday surface waves. Fluids, v. 5, p. 226, 2020.

52. Papatryfonos, K., Ruelle, M., Bourdiol, C., Nachbin, A., Bush, J.W.M., and Labousse, M., Hydrodynamic superradiance in wave-mediated cooperative tunneling. (Nature) Communications Physics, v. 5, p. 142, 2022.

53. Nachbin, A., The effect of isolation on two-particle correlations in pilot-wave hydrodynamics, Phys. Rev. Fluids, Vol. 7, 093604, 2022.

54. Nachbin, A., Water wave models using conformal coordinates, Physica D, 45, 133646. 2023.

55. Kutz, J.N., Nachbin, A., Baddoo, P.J., and Bush, J.W.M., Pilot-Wave Dynamics: Using Dynamic Mode Decomposition to characterize Bifurcations, Routes to Chaos and Emergent Statistics, Phys. Rev. E, **108**, 034213, 2023.

===== **Books** =====   *Texts in Portuguese:* ⊙

• Nachbin, A., Modelling of Water Waves in Shallow Channels, Computational Mechanics Publications, Boston, USA, 1993. 145p. ISBN: 1-56252-062-8.

⊙ Nachbin, A. & Zárate, A. R., Tópicos Introdutórios à Análise Complexa Aplicada, IMPA, 2007, v. 1., 109p. ISBN: 978-85-244-0262-3.
(*Introductory Topics in Applied Complex Analysis*)

⊙ Nachbin, A., Aspectos de Modelagem Matemática em Dinâmica dos Fluidos,

IMPA, 2001, 110p. ISBN: 85-244-0170-2
(*Mathematical Modelling Aspects in Fluid Dynamics*)
    ⊙ Nachbin, A. & Tabak, E., Equações Diferenciais em Modelagem Matemática e Computacional, IMPA, 1997, 99p. ISBN: 85-244-0127-3.
(*Differential Equations in Mathematical and Computational Modelling*)

Teaching Experience

Have taught undergraduate and graduate (postgraduate) courses at:

- IMPA, Brazil.
- Catholic University of Rio de Janeiro (PUC/RJ), Brazil: Economy Department.
- Ohio State University, OH, USA: Department of Mathematics.
- New Jersey Institute of Technology, NJ, USA: Department of Mathematics.
- Massachusetts Institute of Technology, MA, USA: Department of Mathematics.

Graduate Student Supervision

===== Doctoral Research Supervision: =====

Student, graduation year [thesis related papers; # from my publications].
thesis title; written in Portuguese (P); written in English (E).
First job positions.

- Juan Carlos Muñoz Grajales, 2002 [15,19,21].
Dispersive wave attenuation and refocusing due to disordered orographic forcing. (E)
Faculty in the Math. Dept. of the Universidad del Valle, Cali, Colombia.

- Daniel G. Alfaro Vigo, 2004 [16,28].
Time-reversed acoustics in a randomly changing medium. (E)
Post-doc in the Math. Dept. at UC Irvine, CA. Then faculty at the Math. Institute of the Federal Univ. of Rio de Janeiro (UFRJ).

- William Artiles Roqueta, 2004 [12,13].
Modeling non-linear waves through the Dirichlet-to-Neumann operator. (E)
Faculty in the Math. Dept. of the Federal Univ. of Pernambuco (UFPe).

- Júlia S. Wrobel, 2005 [27]. co-advisor: Prof. Dan Marchesin/IMPA.
Loss of injectivity in stratified reservoirs. (P)
Faculty in the Math. Dept. of the Federal Univ. of Espírito Santo (UFES).

- Ailín F. Ruiz de Zárate, 2007 [29,30].
A reduced model for internal waves interacting with submarine structures at intermediate depth. (E)
Faculty in the Math. Dept. of the Federal Univ. of Paraná (UFPR).

- Ana Maria S. Luz, 2009 [34].
Wavetrain stability over a highly variable bathymetry. (P)
Faculty in the Math. Dept. of the Federal Univ. Fluminense (UFF).

- Vanessa da Silva Simões, 2013 [33,38].
Evolution of solitary waves in channels with abrupt turns and branching points. (E)
Researcher at the Schlumberger Research Center in Rio (Industrial district of UFRJ).

- Roberto Ribeiro-Jr, 2014 [36,40,42]. co-advisor: Prof. P.Milewski/Univ.Bath, UK.
Particle trajectories generated by periodic waves with vorticity. (P)
Post-doc at the Math. Dept., Univ. of Vienna and at the Math. Dept. of the Univ. of Bath, UK. Then faculty in the Math. Dept. of the Federal Univ. of Paraná (UFPR).

- Carlos A. Galeano-Ríos, 2016 [37,A,B]. co-advisor: Prof. P. Milewski/Univ.Bath, UK.
Hydrodynamic Pilot-waves: Analytical modeling approaches to the interaction of drops and surface waves. (E)
Math. post-docs: Univ. of Bath. and Univ. of Birmingham, UK.

[A] Damiano, A.P., Brun, P.-T., Harris, D.M., Galeano-Ríos, C.A. and Bush, J.W.M., Surface topography measurements of the bouncing droplet experiment. Exper. Fluids, v. 57, p. 163, 2016.
[B] Galeano-Ríos, C.A., Milewski, P.A., Vanden-Broeck, J.-M., Non-wetting impact of a sphere onto a bath and its application to bouncing droplets. J. Fluid Mech., v. 826, p. 97-127, 2017.

- David Eugenio Andrade Perez, 2016 [43,45].
Modeling of three dimensional water waves, (E)
Post-docs at the Technion, Israel and Univ. Plymouth, UK.

- Marcelo Flamarion, 2018 [47,49], co-advisor: Prof. P. Milewski/Univ. Bath, UK.
Wave models due to current-topography interaction. (P)
Faculty at the Math. Dept. of the Federal Rural Univ. of Pernambuco (UFRPe).

===== **Master's Degree Supervision** =====

(graduation year indicated, as well as the following PhD program)

- Márcio Henrique Marques Macedo. 2023. PhD student at IMPA (advisor A. Nachbin).
- Christian Júnior de Oliveira, 2023. PhD student at IMPA (advisor L. Nissenbaum, Data Science).
- Antônio Catão Saboia Lima e Silva. 2022. Accepted as a PhD student at IMPA (advisor P. Orenstein, Data Sceince).
- Elvis A. Agüero Vera. 2019. Obtained MSc without an undergraduate degree.
- Stevens Paz Sanchez. 2013. PhD student at the State Univ. of São Paulo, S.Carlos.
- Carlos A. Galeano Ríos. 2012. PhD student at IMPA (advisor A. Nachbin).
- Mauricio Jose Poletti Merlo. 2012. PhD student at IMPA (advisor M. Viana, Dynamical Systems).
- Carlos Eugenio Sauer Ayala. 2010. PhD student at the MIT, Math. Dept., USA.
- Rafael A. Monteiro. 2010. PhD student at the Indiana Univ. , Math. Dept., USA.
- Vanessa da Silva Simões. 2009. PhD student at IMPA (advisor A. Nachbin).
- Dalia Mellisa Bonilla. 2006. PhD student at IMPA (advisor L.C. Velho, Computer Graphics).
- Juliana Faus da Silva Dias. 2005. PhD student at CAOS/Courant Inst., NYU, USA.
- Ailín Ruiz de Zárate. 2003. PhD student at IMPA (advisor A. Nachbin).
- Leonardo Xavier Espin Estevez. 2003. PhD student at NJIT, USA.
- José Koiller. 2002. PhD student at the Courant Institute, NYU, USA.
- Alexandre C. M. Federici. 1998. Student from UFRJ.

===== **Post-Doctoral Supervision at IMPA** =====
- David Eugenio Andrade Perez, 2016–2017.
- Ricardo André Barros, 2011–2013.
- Leonardo Espin Esteves, 2010–2011.
- Glauber José Ferreira Tomaz da Silva. 2007–2008.
- Daniel Gregorio Alfaro Vigo. 2006–2007.

===== **Current Graduate Students at IMPA** =====
- Sergio Corrêa Neto. (PhD)
- Eduardo Magalhães de Castro. (PhD)
- Márcio Henrique Marques Macedo. (PhD)
- Otávio Dittrich Moreira (MSc)

================ Grants ================

●: outside of Brazil ⊙: Brazil.

In many cases values are estimated to due variations in the dollar exchange rate.

CNPq: Brazilian Nat. Res. Council, Ministry of Science, Technology and Innovation.
CAPES: Funding Agency from the Ministry of Education.
FAPERJ: Rio de Janeiro State Funding Agency.

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⊙ **1995-present CNPq: Productivity Stipend**. Researchers are evaluated every 4 years, mostly regarding publications and graduate student supervision. Grant provides research stipends paid monthly, since 1995 until today. Funds are small but are relevant regarding prestige. Funding adds to approximately **USD$70K**.

● **2006 SCAT/ALFA program of European Consortium**, (Scientific Computing Advanced Training/America Latina Formación Académica). A mobility grant for students and researchers, for interaction between Latin American institutions and European ones (Brazil, Chile, Mexico, England, France, Spain, Spain). Prof. Lorena Barba (Math. Dept. , Univ. of Bristol, UK) was the PI. I was the Brazilian co-PI. Total funds for the 3 years program: **$900K euros**. One meeting was held at IMPA. One MSc IMPA student had a 6 months visit to Bristol.

⊙ **2009-present FAPERJ:** Special named-grant: **Scientists of Our State/CNE**. Research stipends paid monthly, since 2009, until today. Funding adds to approximately **USD$80K**. Individual funding.

⊙ **2008 CNPq: IMPA's Summer PostDoc Visiting Program.** PI as the Head of Graduate Studies. Total funds of approximately **USD $25K**.

⊙ **2008 CAPES: PROEX**, for graduate programs of excellence. PI as the Head of Graduate Studies. Total funds of approximately **USD $50K**.

⊙ **2009 CNPq: IMPA's Summer School.** PI as the Head of Graduate Studies. Total funds of approximately **USD $25K**.

⊙ **2009 CAPES: PROEX**, for graduate programs of excellence. PI as the Head of Graduate Studies. Total funds of approximately **USD $110K**.

⊙ **2010 CNPq: Organizer of the Waves in Fluids Workshop.** Individual funding. Total funds of approximately **USD $5K**.

⊙ **2010 CAPES: PROEX**, for graduate programs of excellence. PI as the Head of Graduate Studies. Total funds of approximately **USD $201K**.

⊙ **2010 CNPq: IMPA's Summer School.** PI as the Head of Graduate Studies. Total funds of approximately **USD $25K**.

⊙ **2011 FAPERJ: Electric Power Generator for IMPA.** PI for a total funding of **USD$ 156K**.

⊙ **2012 CNPq: Visiting Professor grant** for a 6 months visit of Prof. John Bush (Math. Dept., MIT). Total funds of approximately **USD$18K**.

⊙ **2013 CNPq: Science Without Borders/Special Visiting Professor** for Prof. Paul Milewski (Math. Dept., University of Bath, UK). Project PI. Funding of approximately **USD$90K**.

⊙ **2013 CNPq: Science Without Borders/Special Visiting Professor** for Prof. John Bush (Math. Dept., MIT, USA). Project PI submitted via the INCTMAT (Nat. Inst. for Science and Technology in Math/Brazil). Funding of approximately **USD$90K**.

• **2013 Univ. of Bath: David Parkin Visiting Professorship** had an associated grant of **$10K pounds**. Hosted and submitted by Prof. Paul Milewski (UBath).

⊙ **2013 CNPq: Traveling Fund** for 6 months visit at Bath, UK. Total funds of approximately **USD$14K**.

• **2013-2014 MISTI MIT-Brazil:** Funding for international collaboration. PI: Prof. John Bush; I was the co-PI on the Brazilian side. MIT students visited Brazil as part of the program. Total funds for 2 years: **USD$20K**.

Invited seminars, colloquia and conference presentations

●: outside of Brazil . ⊙: within Brazil.

2024:

● Scientific Computing Seminar, Math. Dept., Brown University, EUA.

● Computational and Applied Mathematics Colloquium, Penn State, EUA.

● Partial Differential Equations and Applied Math Seminar, Drexel University, Philadelphia, EUA.

● Invited speaker to the AMS Special Session on Water Waves, Joint Mathematics Meetings, San Francisco, EUA.

2023:

● Applied Math Seminar, Stanford University, EUA.

● Numerical Methods for PDEs Seminar, Math. Dept., MIT, EUA.

● Math Colloquium, University of Central Florida, EUA.

● Math Colloquium at the Worcester Polytechnic Institute, Worcester, MA, USA.

● Math Colloquium at the SUNY University at Buffalo, Buffalo, NY, USA.

⊙ Webinar at the XV Simposium of Numerical Analysis and Optimization, Federal University of Paraná, UFPR.

2022:

● Speaker at the workshop *Physical Applications* (HY2W05), Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.

● Speaker (remotely) at the Physics Colloquium, UNAM, Mexico.

● Applied Mathematics Seminar (remotely) at the University College of London.

⊙ Speaker at the Physics Colloquium, Federal University of Rio de Janeiro, UFRJ.
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2021:

⊙ Invited speaker in the (remote) V Workshop on Fluids and PDEs, UNICAMP, Brazil.

● Invited speaker in the (remote) Conference on Advances in Pilot Wave Theory, , Univ. of Lisbon, Portugal.

⊙ Invited speaker in the (remote) Workshop on Control Theory and Partial Differential Equations, UFF, Niteroi, Brazil.

⊙ Physics Seminar COMAN (remote) at CBPF, Rio..

● Seminar (remote) in the Department of Mathematics Colloquium Series, SMU, Dallas, USA.

● Physical Mathematics Seminar (remote), Math. Dept., MIT, Boston..

⊙ PDEs and Applied Math Seminar (remote) at UFF, Niteroi, Brazil.

2020:

• Applied and Computational Maths Seminar (remote), Cardiff University.
• Applied Math Seminar (remote), Math. Dept., Stanford University, USA.
• Applied PDEs Seminar(remote), University of Washington, Seattle, USA.
⊙ Undergraduate series PET-Mathematics at UFSC, Florianópolis, Brazil..
⊙ Math Colloquium at UFPe, Recife, Brazil.
⊙ Invited speaker (remotely) on the National Week of Science, Ministry of Science and Technology (MCTI), Brazil.
⊙ Invited speaker at the Workshop on Analysis and PDEs, IME-UFF, Niteroi, Barzil.
⊙ High School seminar at Uirapuru School, Sorocaba, Brazil.
• Waves in One World, series of webinars (remote), Edingburgh, Scotland.

2019:

⊙ Plenary speaker at the II Paranaense Symposium of Partial Differential Equations, Curitiba, Brazil.
⊙ Invited speaker in the "Numerical and Mathematical Aspects of Fluid Dynamics" session of the Brazilian National Meeting, IMPA.
⊙ Invited speaker in the "Innovating Finite Element Methods" session of the Brazilian National Meeting, IMPA.
• Speaker at the workshop "The complex analysis toolbox: new techniques and perspectives", Isaac Newton Institute, Cambridge, UK.
• Applied and Interdisciplinary Mathematics Seminar, University of Bath, UK.
⊙ Colloquium of the Physics Institute, Federal University Fluminense (UFF), Niterói.
⊙ Invited speaker at the Workshop on PDEs and Applied Mathematics, Federal University Fluminense (UFF), Niterói.

2018:

⊙ Physics Colloquium at the Physics Institute of the Federal University of Rio de Janeiro (UFRJ), Rio, Brazil.
⊙ PDE and Applied Mathematics seminar at the Math. Department of UFF (Federal University Fluminense), Niterói, RJ, Brazil.
• Colloquium at the Erwin Schrödinger International Institute for Mathematics and Physics, Vienna.
⊙ Invited speaker at the Workshop on Mathematical and Computational Problems of Incompressible Fluid Dynamics, IMPA.
⊙ Seminar at the Mechanical Engineering Department of the Catholic University of Rio (PUC), Rio de Janeiro.
• Invited speaker at the Hydrodynamic Quantum Analogs VIII, Brown University, Providence, USA.

• Invited speaker at the minisymposium MS12 organized by Prof. W. Choi (NJIT), SIAM Nonlinear Waves and Coherent Structures, Anaheim, CA, USA.

2017:

⊙ Opening conference at the Semana Nacional de Ciência e Tecnologia/SBPC, UFBA, Vitória da Conquista, Brazil.

• Invited speaker, Nonlinear Water Waves, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.

• Invited speaker, Nonlinear Water Waves Workshop, Schrödinger International Inst. for Mathematics and Physics, Vienna.

⊙ Invited speaker at the Oktobermat XV, Math. Dept., PUC/RJ.

• Invited speaker, Waves and Particles workshop, Novel Insights, Physics Dept., UNAM, Mexico.

⊙ Mechanics Seminar, Mathematics Dept., UnB, Brasília.

⊙ Invited speaker at the IX Simposium on Numerical Analysis and Optimization, UFPr (Federal University of Paraná), Curitiba, Brazil.

• Invited speaker at the workshop *Making a Splash - Droplets, Jets and Other Singularities* organized at the *Inst. for Computational and Experimental Research in Mathematics* (ICERM), Brown University, USA.

• Physical Mathematics Seminar, Mathematics Department, MIT, USA.

⊙ Seminar CAIME/UERJ, Math.Dept. UERJ (Rio de Janeiro State University).

2016:

• Contributed talks at the *Annual Meeting da American Physical Society, Division of Fluid Dynamics*, Portland, OR, USA.

• Invited instructor at the *The Burgers Program 2016, Summer Research School on Fluid Dynamics: Topics in Nonlinear Water Waves*, University of Maryland, USA.

• Invited lecturer at the *Partial Differential Equations Summer School*, Gulbenkian Foundation, Lisbon, Portugal.

• Applied Math Seminar, Ohio State University, Columbus, OH,USA.

⊙ invited speaker in the session *Recent Developments in Fluids*, 1st Joint Meeeting Brazil-Italy in Mathematics, IMPA, Brazil.

⊙ Plenary speaker at the Brazilian National Conference on Applied and Computational Mathematics, Gramado, Brazil.

• Plenary speaker at the *Frontiers of Applied and Computational Mathematics*, New Jersey Inst. of Technology, Newark, USA.

⊙ Mechanical Engineering Seminar at COPPE/UFRJ (Federal University of Rio de Janeiro), Brazil.

2015:

• Physical Mathematics Seminar, Math. Department, MIT, USA.

• Invited speaker at the *Recent Advances in Applied and Computational Mathematics* meeting at the Huazhong University of Science and Technology Wuhan, China. Meeting in honor of Prof. Russ Caflisch's 60th birthday.

• Invited speaker at the *Water Wave Dynamics* meeting at the Math. Department of the University of Vienna, Austria.

• Invited speaker at the *Workshop on Interdisciplinary Mathematics*, Center for Interdisciplinary Mathematics at the Department of Mathematics, Penn State University.

• Contributed talk at the American Physical Society, Division of Fluid Dynamics Annual Meeting (APS/DFD), Boston, USA.

⊙ Invited speaker at the VII Summer Workshop of Mathematics, UnB, Federal University of Brasília, Brazil.

2014:

⊙ Invited speaker at the School "Around Vortices: from Continuum to Quantum Mechanics", IMPA, Brazil.

• Minisymposium and talk at the SIAM Conference on Nonlinear Waves and Coherent Structures, Cambridge, U.K..

• Invited speaker at the Conference on Stochastic Asymptotics and Applications in honor of the 60th birthday of Prof. J.P. Fouque, Department of Statistics and Applied Probability, University of California at Santa Barbara, USA.

• Fluid Dynamics Group Seminar, Dept. of Mat., Imperial College of London, U.K..

• The David Parkin Lecture of the University of Bath, U.K..

• The London Analysis and Probability Seminar, Imperial College of London, U.K..

⊙ Applied Mathematics Seminar at the Federal University of Santa Catarina (UFSC), Brazil.

⊙ Probability Seminar at the Federal University of Rio de Janeiro (UFRJ), Brazil.

• Invited speaker at the *Theory of Water Waves; Summer School*, Newton Institute, University of Cambridge, U.K..

⊙ Invited speaker at the XII Oktobermat, Mathematics Dept. of the Catholic University (PUC), Rio de Janeiro, Brazil.

2013:

• Invited speaker at the Recent Developments in Applied Mathematics conference, Math. Dept., Stanford University. A conference to honor the 70th Birthday of Professor George Papanicolaou.

• Invited speaker at the IUTAM Symposium 2013: *Nonlinear interfacial wave phenomena from the micro to the macro-scale*, Cyprus.

• Applied Maths Seminar, Math. Dept. University of Manchester, UK.

• Applied Maths Seminar, Math. Dept. Univ. College of London.

• Lefschetz Center for Dynamical Systems Seminar, Division of Applied Math., Brown University, USA.

⊙: Computer Science Colloquium at the Federal University of Rio de Janeiro (UFRJ).

2012:

• Applied and Computational Analysis seminar, DAMTP, University of Cambridge, UK.

• Centre for Nonlinear Mechanics seminar, Math. Dept., University of Bath, UK.

• Fluid Dynamics Group seminar, Math. Dept., Imperial College of London, UK.

• Invited speaker at the Workshop on Mathematical Aspects of Water Waves, Math. Dept., King's College of London, UK.

• Contributed talk at the Intern. Conf. on Nonlinear Waves in Fluids, in honor of Roger Grimshaw, Loughborough, UK.

• Physical Mathematics Seminar, Math. Dept., MIT, USA.

• Applied Mathematics Seminar, Math. Dept., Univ. of North Carolina at Chapel Hill, USA.

• Invited speaker in the minisymposium MS21, of the SIAM Conf. on Nonlinear Waves and Coherent Structures, Seattle, USA.

⊙ Invited speaker at the II Brazil-China Symp. on Applied and Computational Math., Iguaçu Falls, Brazil.

⊙ Invited speaker at the VI Scientific Initiation Workshop, short-course on Waves in Fluids, IMPA, Brazil.

⊙ Invited speaker at the Intern. Workshop on N-vortex and N-body dynamics, Federal University of Rio de Janeiro (UFRJ), Brazil.

⊙ Seminar at the Environment Eng. Division of the *Engineering Club* of Rio de Janeiro.

2011:

• Invited speaker at the Journées en l'honneur de George Papanicolaou (doctor honoris causa by Paris VII), Paris, France.

• Invited speaker at the workshop Qualitative and numerical aspects of water waves and other interface problems, Inst. E. Schrödinger, Vienna, Austria.

• Invited speaker at the workshop Advances in the Numerical Solution of Constrained Differential Equations in honor of Uri Ascher's 65th birthday, Vancouver, Canada.

• Contributed talk at the 7th International Congress on Industrial and Applied Mathematics - ICIAM 2011, Vancouver, Canada.

⊙ Invited speaker at the IV EBED - Brazilian School on Differential equations, J.Pessoa, Brazil.

⊙ Mathematics Colloquium at the Federal University of Santa Catarina (UFSC), Florianópolis, Brazil.

⊙ Invited speaker at the III Simposium on Numerical Analysis and Optimization at

the Federal University of Paraná (UFPr), Curitiba.

2010:

• Invited speaker at the conference Frontiers in Applied and Computational Mathematics, FACM 2010, NJIT, Newark, EUA.

• Invited speaker at a mini-symposium in the Second International Conference: Nonlinear Waves–Theory and Applications , Beijing, China.

• Invited speaker at a mini-symposium in the European Geosciences Union, General Assembly 2010, Natural Hazards session NH5.1. Vienna, Austria.

• Invited speaker at the WAMCE 2010 – Workshop on Computational and Applied Mathematics for Engineering; Asumpcion, Paraguay.

⊙ Invited speaker at a mini-symposium in the Brazilian Conference on Applied and Computational Math (CNMAC), Águas de Lindóia, SP.

⊙ Dynamical and Stochastic Systems seminar at the State University of Campinas (UNICAMP), Campinas.

⊙ Stochastic Processes and Applications seminar, at NUMEC/USP, State University of São Paulo, São Paulo, Brazil.

⊙ Invited speaker at the 1st Franco-Brazilian Fluids Summer School, at the State University of Campinas (UNICAMP), Campinas.

2009:

• Invited speaker at the First Uruguayan Meeting on Fluid Mechanics, Montevideo, Uruguay.

⊙ Invited speaker at the Brazilian Academy of Sciences; The Year of France in Brazil, Rio de Janeiro.

⊙ Invited speaker at the First Brazil-China Conference on Scientific Computing - BCSciComp2009, LNCC, Petrópolis.

⊙ Physics Colloquium at the Federal University of Rio de Janeiro (UFRJ).

⊙ Invited speaker at the Trends in Mathematics for Engineering Education, UNICAMP, Campinas, SP.

⊙ Organizer and speaker at the INCT Workshop on Mathematics and Climate Changes, IMPA.

⊙ Invited speaker at the SEMAP, Applied Math Week at the Federal University of Rio de Janeiro (UFRJ).

2008:

• Invited speaker at the Latin American & Caribbean Congress of Theoretical and Applied Mechanics (LACCOTAM), Trinidad and Tobago.

• Invited speaker at a mini symposium in the International Conference: Nonlinear Waves–Theory and Applications, Beijing, China.

• Invited speaker at a mini-symposium in the SIAM Conference on Nonlinear Waves and Coherent Structures, Rome, Italy.

⊙ Plenary speaker at the AMS-SBM First Joint Meeting, IMPA.

⊙ Physics Colloquium, at the Federeal University of Pernambuco, Recife, Brazil.

⊙ Invited speaker at the Graduate Students Meeting at UNICAMP, Campinas.

2007:

• Invited speaker at the ALFA/SCAT First Latin American Scientific Workshop, Chile.

• Invited speaker at the NSF-Conicet Pan-American Advanced Studies Institute (PASI) on Interfacial Fluid Dynamics: From Theory to Applications, Argentina.

• Invited speaker at the ALFA/SCAT Second Latin American Scientific Workshop, Mexico.

⊙ Short-course in the 26o. Colóquio Brasileiro de Matemática (the Brazilian National Math Meeting), IMPA, Brasil.

⊙ Invited speaker at the "Mathematics Jornadas" at the Catholic University/PUC-Rio.

⊙ Invited speaker at the II National Meeting on Theoretical and Computational Physics, Institute of Theoretical Physics (IFT), São Paulo.

⊙ Inter-Institutional Colloquium on Stochastic Modeling and Application, CBPF (Brazilian Center for Physics Research), Rio.

2006:

• Contributed speaker at the Eleventh International Conference on Hyperbolic Problems Theory, Numerics, Applications, Lyon, France.

• Invited speaker at the mini-symposium (MS18) of the SIAM Conference on Nonlinear Waves and Coherent Structures, Orlando, USA.

• Invited speaker at the ALFA project on Scientific Computing Advanced Training (SCAT) Kick-off Meeting, Universidad Politecnica de Catalunya, Barcelona, Spain.

• Invited speaker at the Second European SCAT Workshop, Paris.

• Invited speaker at the I ENED, Encuentro Nacional de Ecuaciones Diferenciales, Cordoba, Argentina.

• Short-course in the Math. Dept. of the Universidad del Valle, Cali, Colombia.

• Invited speaker at the PDEs Workshop, Universidad del Valle, Cali, Colombia.

2005:

• Physical Mathematics Seminar, Math. Dept., MIT, USA.

• Contributed talk at the Annual Meeting of the Division of Fluid Dynamics/American Physical Society, Chicago, USA.

• Invited speaker at the Frontiers on Applied and Computational Mathematics, NJIT, Newark, USA.

• Invited speaker at the Nonlinear Waves 50 Years after Fermi-Pasta-Ulam (FPU+50), Rouen, France.

• Invited speaker at the Partial Differential Equations, Optimal Design and Numerics, Benasque, Spain.

• Invited speaker at the Radiative transport and diffusion-approximation: From theory to applications, CIRM/Luminy, Marseille, France.

⊙ Invited speaker at the Fourth Industrial Math Week, at the Federal University of Paraná (UFPr), Curitiba, Brazil.

⊙ Invited speaker for a young audience at the 25th Colóquio Brasileiro de Matemática (Brazilian National Math. Meeting).

2004:

• Invited speaker at the International Workshop on Nonlinear Waves, in honor of Prof. Papanicolaou's 60th birthday, Hong Kong.

• Invited speaker at a minisymposium in the Monte Carlo Methods and Probabilistic Methods in PDEs, Juan-Les-Pin, France.

• Contributed presentation at the SIAM Nonlinear Waves and Coherent Structures, University of Central Florida, Orlando, USA.

• Seminar at the Math. Dept., CAMP (Appl. Math. Program), University of Chicago, Chicago, USA.

• Invited speaker at the SBPC/AAPC joint meeting in Buenos Aires, Argentina.

• Seminar at the Physics Dept. of the University of New Mexico, Albuquerque, USA.

⊙ Plenary speaker at the XXVII CNMAC, Brazilian National Meeting for the Society of Computational and Applied Math., Porto Alegre, Brazil.

⊙ Invited speaker at the Workshop on Nonlinear Waves, Institute of Theoretical Physics (IFT) , São Paulo, Brazil.

⊙ Invited speaker at the 1st Undergraduate Math Meeting at the Federal University of Santa Catarina (UFSC), Florianopólis, Brazil.

⊙ Invited speaker at the VII Computational Modeling Meeting at IPRJ, Friburgo, Brazil.

2003:

• Colloquium on Atmosphere-Ocean Science, Courant Institute, NYU, USA.

• Fluid Dynamics Seminar, New Jersey Institute of Technology, Newark, USA.

• Invited speaker at the Workshop on Wave Propagation and Time Reversal, University of California at Irvine, USA.

⊙ Invited speaker at the V Seminar on Waves, Tides and Ocean Engineering, at the Brazilian Navy's Institute for Ocean Studies Alm. Paulo Moreira, Arraial do Cabo, Brazil.

⊙ Invited speaker at the Math. Week of the Catholic University, Rio de Janeiro,

Brazil.

2002:

- Invited speaker at mini-symposium of the SIAM 50 Years Annual Meeting, Philadelphia, USA.
- Contributed talk at the SIAM 50 Years Annual Meeting, Philadelphia, USA.
- Center of Applied Mathematics Seminar, University of Porto, Portugal.
- ⊙ Invited speaker at the First Workshop on Nonlinear Analysis in PDEs, Federal University of Minas Gerais (UFMG), Belo Horizonte, Brazil.
- ⊙ Invited speaker at the Mini-Colloquium on Ondulatory Problems in Geophysical Fluids, IAG/USP, São Paulo, Brazil.
- ⊙ Invited speaker at the Regional Colloquium of the Brazilian Math Society (SBM), Curitiba, Brazil.
- ⊙ Invited speaker at the First Biannual Math Meeting of the Brazilian Math Society (SBM), Belo Horizonte, Brazil.

2001:

- Invited speaker at the Workshop Imaging in a Noisy Environment, Institute of Applied and Computational Mathematics, Crete, Greece.
- Contributed talk at the SCiCADE, Intern. Congress on Scientific Computing and Differential Equations, Vancouver, Canada.
- ⊙ Invited speaker at the VI Workshop on Computational Methods for Atmospheric, Oceanic and Groundwater Flows, National Laboratory of Scientific Computing (LNCC).
- ⊙ Invited speaker at the VI ERMAC-UFU, local meeting of the Brazilian Society for Applied and Computational Mathematics (SBMAC), Uberlândia, Brazil.

2000:

- Computer Science Seminar, University of British Columbia, Vancouver, Canada.
- ⊙ Contributed talk at the Brazilian Meteorology Congress, State University of Rio de Janeiro (UERJ), Rio de Janeiro, Brazil.
- ⊙ Seminar at the Institute of Theoretical Physics (IFT), São Paulo, Brazil.
- ⊙ Seminar at the National Laboratory of Scientific Computing (LNCC), Petrópolis, Brazil.

1999:

- Applied Mathematics Seminar, Università Degli Studi Roma Tre, Rome, Italy.
- Invited speaker at the V Workshop on Computational Methods in Atmospheric, Oceanic and Groundwater Flows, Trento, Italy.
- ⊙ General audience seminar ("divulgação") at the Federal University Fluminense (UFF), Niterói, Brazil.

⊙ Invited speaker at the UFMG session of the Brazilian Academy of Sciences, Belo Horizonte, Brazil.

⊙ Invited speaker at the Brazilian Navy's Institute for Ocean Studies Alm. Paulo Moreira, Arraial do Cabo, Brazil.

⊙ Invited speaker at the Workshop on Computational Modeling and Applications, National Laboratory of Scientific Computing (LNCC), Petrópolis, Brazil.

1998:

• Applied Math Seminar, New Jersey Institute of Technology, Newark, USA.

• Invited speaker at the IV Workshop on Computational Methods for Atmospheric, Oceanic and Groundwater Flows, US Geological Survey, Denver, USA.

• Contributed talk at the IV International Conference on Mathematical and Numerical Aspects of Wave Propagation, SIAM, Denver, USA.

⊙ Math Colloquium at the Catholic University, Rio de Janeiro, Brazil.

⊙ Invited speaker at the Workshop in PDE: Thermo and Visco-Elasticity, Numerical Methods and Control, LNCC, Brazil.

1997:

⊙ Math Modeling and Numerical Methods Seminar, State University of São Paulo (USP), São Paulo, Brazil.

⊙ Computing Seminar, State University of São Paulo (USP), São Carlos, Brazil.

⊙ Math and Scientific Computing Seminar, Federal University of Santa Catarina (UFSC), Florianópolis, Brazil.

⊙ Invited speaker at the II Workshop on Computational Methods for Atmospheric, Oceanic and Groundwater Flows, National Laboratory of Scientific Computing (LNCC), Rio de Janeiro, Brazil.

1996:

• Invited speaker at the II Workshop on Computational Methods for Atmospheric, Oceanic and Groundwater Flows, Trento, Italy.

• Invited speaker at the XIII National Seminars of Mathematics, Córdoba, Argentina.

⊙ Invited speaker at the PDEs and Numerical Analysis Meeting at the Federal University of Rio de Janeiro (UFRJ), Brazil.

⊙ Invited speaker at the High Performance Computing Meeting at the National Laboratory of Scientific Computing (LNCC), Rio de Janeiro, Brazil.

⊙ Invited speaker at the IV ERMAC, regional meeting of the the Brazilian Society for Applied and Computational Mathematics (SBMAC), Friburgo, Brazil.

1995:

• Contributed talk at the III SIAM Conference on Mathematical and Computational Issues in the Geosciences, San Antonio, USA.

⊙ Applied Math Seminar, State University of São Paulo (USP), São Paulo, Brazil.

⊙ Mathematics Seminar, University of Brasília (UnB), Brasília, Brazil.

⊙ Particle Physics Seminar at the Brazilian Center for Physics Research (CBPF), Rio de Janeiro, Brazil.

⊙ Mathematics and Mathematical-Physics Seminar, Federal University of Minas Gerais (UFMG), Belo Horizonte, Brazil.

⊙ Physics Colloquium at the Brazilian Center for Physics Research (CBPF), Rio de Janeiro, Brazil.

⊙ Invited speaker at the I Workshop on Computational Methods for Atmospheric and Oceanic Flows, National Laboratory of Scientific Computing (LNCC), Rio de Janeiro, Brazil.

⊙ Invited speaker at the CNMAC (Brazilian Conference on Applied and Computational Math.), Curitiba, Brazil.

⊙ Contributed talk at the Italian-Latin American Conference in Applied and Industrial Mathematics, Federal Univrsity of Rio Grande do Sul (UFRGS), Porto Alegre, Brazil.

1994:

⊙ Seminar at COPPE/Mechanical Engineering (UFRJ), Rio de Janeiro, Brazil.

1993:

• Applied Math Seminar, University of Delaware, Newark, USA.

• Applied Math Seminar, Pennsylvania State University, University Park, USA.

• Invited speaker at the Probability and Numerical Methods Conference, INRIA, Paris, France.

• Contributed talk at the SIAM Annual Meeting, Philadelphia, USA.

• Contributed talk at the SIAM II International Conference on Mathematical and Numerical Aspects of Wave Propagation, Univ. of Delaware, Newark, USA.

⊙ Applied Math Seminar, State University of Campinas (UNICAMP), Campinas, Brazil.

⊙ Invited speaker at the III Workshop on Partial Differential Equations and Applications, IMPA, Rio de Janeiro, Brazil.

1992:

• Calderón-Zygmund Seminar, University of Chicago, USA.

• Applied Math Seminar, Courant Institute, NYU, USA.

• Applied Math Seminar, State University of New York, Stony Brook, USA.

• Mathematics Colloquium, Haverford College, PA, USA.

• Applied Math Seminar, New Jersey Institute of Technology, Newark, USA.

• Civil Engineering Seminar, New Jersey Institute of Technology, Newark, USA.

• Invited speaker at the 45th Probability Seminar, Case Western University, Cleveland, USA.

• Contributed talk at the Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Talahassee, USA.

• Contributed talk at the SIAM Annual Meeting, Los Angeles, USA.

1991:

⊙ Applied Math Seminar, State University of São Paulo (USP), São Paulo, Brazil.

⊙ Invited speaker at the Analysis Session of the XVIII Brazilian National Meeting, IMPA, Rio de Janeiro, Brazil.

1990:

• Applied Math Seminar, University of Toronto, Canada.

• Mathematics Colloquium, University of Rochester, USA.

1989:

• Probability Seminar, Ohio State University, Columbus, USA.

• Applied Math Seminar, General Motors Research Laboratories, Detroit, USA.

• Applied Math Seminar, Ohio State University, Columbus, USA.

• Contributed talk at the XXI International Conference on Boundary Elements Method, MIT, USA.

• Invited presentation at the Mathematics of Random Media, AMS-SIAM Summer Seminar, Virginia, USA.

1988:

⊙ Applied Math Seminar, IMPA, Rio de Janeiro, Brazil.

⊙ Applied Mechanics Seminar, National Lab. Scien. Computing (LNCC), Rio.

1987:

⊙ Applied Mechanics Seminar, National Lab. Scien. Computing (LNCC), Rio.