Raffaele D'Ambrosio

Curriculum Vitae

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Current position

From 1/04/2021 **Full Professor**
(*Sector 01/A5 - Numerical Analysis; Scientific Disciplinary Sector MAT/08 - Numerical Analysis*), Department of Information Engineering and Computer Science and Mathematics, University of L'Aquila. By Rectoral Decree of 18/6/2024, the undersigned is classified in the scientific disciplinary group 01/MATH-05 - Numerical Analysis, scientific disciplinary sector MATH-05/A - Numerical Analysis, pursuant to art. 2, paragraph 1, Ministerial Decree 639/2024.

Past positions

From 1/09/2017 to 31/03/2021 **Associate Professor** (*Sector 01/A5 - Numerical Analysis; Scientific Disciplinary Sector MAT/08 - Numerical Analysis*), Department of Information Engineering and Computer Science and Mathematics, University of L'Aquila.

From 15/04/2015 to 31/08/2017 **Researcher ex L. 240/2010, art. 24, comma 3, letter A** (*Sector 01/A5 - Numerical Analysis; Scientific Disciplinary Sector MAT/08 - Numerical Analysis*), at the Department of Mathematics, University of Salerno.

From 1/11/2014 to 30/03/2015 **Fulbright Research Scholar** at the School of Mathematics, Georgia Institute of Technology (Atlanta, USA).

From 2/04/2012 to 1/04/2015 **Post-Doc position ex L. 240/2010, art. 22** (*Scientific Disciplinary Sector MAT/08 - Numerical Analysis*), at the Department of Mathematics, University of Salerno, (Call Rep. 2085, Prot. 31903, University of Salerno).

From 1/07/2010 to 30/06/2011 **Post-Doc position ex L. 398/1989, art. 4** at the Department of Mathematics, University of Salerno (Call Rep. 1290, Prot. 19550, University of Salerno).

From 1/11/2006 to 31/10/2009 **Ph.D. student in Mathematics** (*VIII Cycle - New Series*), at the University of Salerno, bi-nationally supervised at Arizona State University, (Call of the Ph.D. position Rep. 2085, Prot. 31903 of the University of Salerno; call for the bi-national supervision Rep. 2036, Prot. 48262 of the University of Salerno); advisors: Beatrice Paternoster and Zdzislaw Jackiewicz.

Academic studies

19/03/2010 **Ph.D. in Mathematics**, with evaluation "ottimo", at the University of Salerno, bi-nationally supervised at Arizona State University. Title of the thesis: "Highly stable multistage numerical methods for Functional Equations: Theory and Implementation Issues". Advisors: Beatrice Paternoster (University of Salerno) and Zdzislaw Jackiewicz (Arizona State University).

19/09/2006 **Master Degree in Mathematics**, cum laude, at the University of Salerno. Title of the thesis: "Metodi a due passi di collocazione per equazioni differenziali ordinarie di tipo speciale". Advisor: Beatrice Paternoster.

17/11/2004 **Degree in Mathematics**, cum laude, at the University of Salerno. Title of the thesis: "Metodi numerici per equazioni iperboliche". Advisor: Giovanni Capobianco.

Prizes

2015 **Honorary Fellow of the *European Society of Computational Methods in Science and Engineering***
granted during the international conference ICNAAM 2015, Rhodes (Greece), where the undersigned has been invited as plenary speaker.

2014 **Fulbright Research Scholarship A.Y. 2014–2015**
granted by the U.S.-Italy Fulbright Commission. The related scientific activity was carried out at the School of Mathematics, Georgia Institute of Technology, Atlanta (USA).

2011 **Galileo Galilei Prize 2011 - Young Section**
granted by Rotary International and Fondazione Galileo Galilei of Pisa.

2011 **Finalist of the Cavalierato Giovanile Prize 2011**
district of Salerno.

Granted projects

As principal investigator

2024 **PI del Progetto PRIN 2022 (20229P2HEA)**
title of the project: "*Stochastic numerical modelling for sustainable innovation*". Ranking approval decree: D. D. n. 18490 October 8, 2024.

2023 **PRIN-PNRR**
title of the projecy: "*BAT-MEN (BATtery Modeling, Experiments & Numerics) - Enhancing battery lifetime: mathematical modeling, numerical simulations and AI parameter estimation techniques for description and control of material localization processes*". Ranking approval decree: D.D. n. 1209, July 28, 2023. Responsible of the local unit of the University of L'Aquila.

2023 **MONDI. MOdellistica Numerica e Data-driven per l'innovazione sostenibile**
Project granted by the University of Udine ex DM 737 and part of NextGeneration EU (CUP G25F21003390007). Involved research units: University of L'Aquila, University of Salerno, University of Udine. Responsible of the local unit of L'Aquila.

2021 **PON ex DM 1062/2021 - Action IV.4 – Research contracts on innovation topics**
title of the project: "*Modellistica numerica di equazioni differenziali stocastiche per la dinamica di supply chain*". The corresponding researcher position has been granted with the Call of the University of L'Aquila n. 1049/2021 Prot. n. 119177, 19/10/2021..

2019 **PI of the PRIN Project 2017**
title of the project: "*Structure preserving approximation of evolutionary problems*". Ranking approval decree: D.D. 14/02/2019, prot. 240. The project is the only one funded under for the PE1 (Mathematics), Line B (PI under 40).

2019 **GNCS-INDAM Project 2019**
title of the project: "*Problemi di evoluzione e loro discretizzazione: questioni di stabilità lineare e non lineare*". Involved research units: University of L'Aquila, Gran Sasso Science Institute, University of Bari, "Sapienza" University of Rome, University of Salerno, University of Trieste, University of Udine.

2018 **GNCS-INDAM Project 2018**
title of the project: "*Approssimazione numerica di problemi di evoluzione: aspetti deterministici e stocastici*". Involved research units: University of L'Aquila, Gran Sasso Science Institute, University of Bari, "Sapienza" University of Rome, University of Salerno, University of Trieste, University of Udine.

2014 **Fulbright Research Scholar 2014–2015**
title of the project: "*Discontinuous dynamical systems: an accurate and efficient framework for their numerical solution*". The related scientific activity was carried out at the School of Mathematics, Georgia Institute of Technology, Atlanta (USA).

2014 **Young Researchers Program GNCS-Indam 2014**
title of the project: "*Metodi structure-preserving per problemi di evoluzione*".

2013 **Young Researchers Program GNCS-Indam 2013**
title of the project: "*Integrazione long-term di sistemi Hamiltoniani e problemi oscillanti*".

2012 **Young Researchers Program GNCS-Indam 2012**.

2010 **Young Researchers Program GNCS-Indam 2010**.

2009 **Young Researchers Program GNCS-Indam 2009**.

As participant

2024 **GNCS-Indam Project 2024**
title of the project: "*Analisi numerica di problemi di evoluzione complessi: stabilita', conservazione e tecniche data-driven*". Responsible: Carmela Scalone (University of L'Aquila).

2023 **GNCS-Indam Project 2023**
title of the project: "*Sistemi dinamici e modelli di evoluzione: tecniche funzionali, analisi qualitativa e metodi numerici*". Responsible: Fabio Difonzo (University of Bari "Aldo Moro").

2018–2023 **Fondo RIA (Progetti di Ricerca di Interesse per l'Ateneo) Università degli Studi dell'Aquila**
Responsabile: Francesco Leonetti.

2022 **GNCS-Indam Project 2022**
title of the project: "*Metodi numerici avanzati per l'analisi di sistemi dinamici*". Responsible: Dimitri Breda (Università degli Studi di Udine).

2018–2023 **RIA - Research projects of interest for the university. University of L'Aquila**
Responsible: Francesco Leonetti.

2020 **GNCS-Indam Project 2020**
title of the project: "*Analisi numerica di sistemi evolutivi complessi*". Responsible: Dimitri Breda (University of Udine).

2017 **GNCS-Indam Project 2017**
title of the project: "*Analisi e sviluppo di metodologie numeriche per certi tipi non classici di sistemi dinamici*". Responsible: Stefano Maset (University of Trieste).

2006–2016 **FARB Projects - University of Salerno. Responsible: Beatrice Paternoster**.

Visiting periods in Italy and abroad

Aprile 2024 **Universidad de Malaga**
Malaga (Spagna), scientific collaboration with Maria Lopez Fernandez.
Length of the visit: 1 settimana.

February 2023 **Fundação "Getulio Vargas", Escola de Matematica Aplicada**
Rio de Janeiro (Brasile), scientific collaboration with Hugo de La Cruz.
Length of the visit: 2 weeks.

Ottobre 2021 **Université de Genève, Section de Mathématiques**
Geneve (Switzerland), scientific collaboration with Gilles Vilmart.
Length of the visit: 1 week.

October 2019 **Fundação "Getulio Vargas", Escola de Matematica Aplicada**
Rio de Janeiro (Brasile), scientific collaboration with Hugo de La Cruz.
Length of the visit: 2 weeks.

May 2017 **Arizona State University, School of Math. and Statistical Sciences**
Tempe (USA), scientific collaboration with Zdzislaw Jackiewicz.
Length of the visit: 2 weeks.

February, March, July 2016 **MOX Laboratory, Politecnico di Milano**
scientific collaboration with Anna Scotti.
Length of the visit complessiva: 3 weeks.

November 2014–March 2015 **Georgia Institute of Technology, School of Mathematics**
Atlanta (USA), Fulbright Scholar, scientific collaboration with Luca Dieci.
Length of the visit: 5 months.

March–April 2014 **Johannes Kepler Universitat Linz, Institut fur Stochastic**
(Linz, Austria), scientific collaboration with Evelyn Buckwar.
Length of the visit: 1 month.

April–May 2013 **Université de Genève, Section de mathématiques**
(Ginevra, Switzerland), scientific collaboration with Ernst Hairer.
Length of the visit: 2 months.

January 2013 **University of Auckland, Department of Mathematics**
(Auckland, New Zealand), scientific collaboration with J.C. Butcher.
Length of the visit: 1 month.

October–December 2010 **University of Auckland, Department of Mathematics**
(Auckland, New Zealand), scientific collaboration with J.C. Butcher.
Length of the visit: 2 months.

March 2008–March 2009 **Arizona State University, School of Math. and Statistical Sciences**
Tempe (USA), scientific collaboration with Zdzislaw Jackiewicz.
Length of the visit: 1 year.

Principal research topics

- Structure-preserving numerical integration of deterministic and stochastic evolutionary problems (linear and non-linear oscillators; Hamiltonian problems; dissipative problems).
- Linear and nonlinear stability of deterministic and stochastic numerical methods.
- Adapted numerical methods for partial differential equations.
- Numerical integration of deterministic and stochastic problems with memory (Volterra integral equations, fractional differential equations).
- Numerical collocation techniques for differential problems.
- Exponential/trigonometrical numerical schemes for oscillatory problems.
- Numerical schemes for stiff problems free from order reduction.
- Numerical treatment of chemical oscillators.
- Numerical modeling of fake news diffusion.

Publications

Monographs

1. R. D'Ambrosio, *Numerical approximation of ordinary differential problems. From deterministic to stochastic numerical methods*, Springer (2023).

Journal papers (peer reviewed)

2. R. D'Ambrosio, S. Di Giovacchino, *Strong backward error analysis of symplectic integrators for stochastic Hamiltonian systems*, Appl. Math. Comput. 467, article number 128488 (2024).
3. A. Moradi, J. Chouchoulis, R. D'Ambrosio, J. Schütz, *Jacobian-free explicit multiderivative general linear methods for hyperbolic conservation laws*, Numer. Algorithms, doi: 10.1007/s11075-024-01771-6 (2024).
4. R. D'Ambrosio, H. de la Cruz, C. Scalone, *A Magnus-based integrator for Brownian parametric semi-linear oscillators*, Appl. Math. Comp. 472, article number 128610 (2024).
5. A. Moradi, R. D'Ambrosio, *Random periodic solutions of SDEs: existence, uniqueness and numerical issues*, Comm. Nonlin. Sci. Numer. Simul 128, article number 107586 (2024).

6. A. Bazzani, R. D'Ambrosio, P. Freguglia, E. Venturino, *A probabilistic phenotype dynamical model for sympatric speciation: some properties and numerical results*, in press su Journal of Biological Systems (2024).

7. R. D'Ambrosio, S. Di Giovacchino, *Long-term analysis of stochastic Hamiltonian systems under time discretizations*, SIAM Journal of Scientific Computing 45(2), A257–A288 (2023).

8. R. D'Ambrosio, S. Di Giovacchino, *Numerical conservation issues for the stochastic Korteweg-de Vries equation*, Journal of Computational and Applied Mathematics 424, article number 114967 (2023).

9. F. Antonelli, R. D'Ambrosio, I. Gallo, *Analysis of non-linear approximated value equation under multiple risk factors and stochastic intensities*, Computers & Mathematics with Applications 140, 24–32 (2023).

10. A. Moradi, R. D'Ambrosio, B. Paternoster, *Variable stepsize multivalue collocation methods*, Applied Numerical Mathematics 190, 1–14 (2023).

11. R. D'Ambrosio, S. Di Giovacchino, G. Giordano, B. Paternoster, *On the conservative character of discretizations to Itô-Hamiltonian systems with small noise*, Applied Mathematics Letters 138, article number 108529 (2023).

12. R. D'Ambrosio, A. Moradi, C. Scalone, *A long term analysis of stochastic theta methods for mean reverting linear process with jumps*, Applied Numerical Mathematics 185, 516–529 (2023).

13. R. D'Ambrosio, N. Guglielmi, C. Scalone, *Destabilising nonnormal stochastic differential equations*, Discrete and Continuous Dynamical Systems - B 28(3), 1632–1642 (2023).

14. R. D'Ambrosio, S. Di Giovacchino, *How do Monte Carlo estimates affect stochastic geometric numerical integration?*, International Journal of Computer Mathematics 100(1), 192–208 (2023).

15. R. D'Ambrosio, *Book review: "B-Series: Algebraic Analysis of Numerical Methods" by John C. Butcher*, European Mathematical Society Magazine 124, 63–64 (2022).

16. R. D'Ambrosio, S. Di Giovacchino, *Numerical preservation issues in stochastic dynamical systems by ϑ-methods*, Journal of Computational Dynamics 9(2), 123–131 (2022).

17. A. Abdi, D. Conte, R. D'Ambrosio, B. Paternoster, *Multivalue second derivative collocation methods*, Applied Numerical Mathematics 182, 344–355 (2022).

18. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *Multivalue Collocation Methods for Ordinary and Fractional Differential Equations*, Mathematics 10(2), 185 (2022).

19. E. Buckwar, R. D'Ambrosio, *Correction to: Exponential mean-square stability properties of stochastic linear multistep methods*, Advances in Computational Mathematics 47(6), 78 (2021).

20. E. Buckwar, R. D'Ambrosio, *Exponential mean-square stability properties of stochastic linear multistep methods*, Advances in Computational Mathematics 47, article number 55 (2021).

21. R. D'Ambrosio, G. Giordano, S. Mottola, B. Paternoster, *Stiffness Analysis to Predict the Spread Out of Fake Information*, Future Internet 13(9), article number 222 (2021).

22. R. D'Ambrosio, C. Scalone, *Filon quadrature for stochastic oscillators driven by time-varying forces*, Applied Numerical Mathematics 169, 21–31 (2021).

23. M.A. Budroni, G. Pagano, D. Conte, B. Paternoster, R. D'Ambrosio, S. Ristori, A. Abou-Hassan, F. Rossi, *Synchronization scenarios induced by delayed communication in arrays of diffusively coupled autonomous chemical oscillators*, Physical Chemistry Chemical Physics 23(32), 17606–17615 (2021).

24. D. Conte, R. D'Ambrosio, M.P. D'Arienzo, B. Paternoster, *Multivalue mixed collocation methods*, Applied Mathematics and Computation 409, article number 126346 (2021).

25. R. D'Ambrosio, G. Giordano, B. Paternoster, A. Ventola, *Perturbative analysis of stochastic Hamiltonian problems under time discretizations*, Applied Mathematics Letters 120, article number 107223 (2021).

26. R. D'Ambrosio, S. Di Giovacchino, *Mean-square contractivity of stochastic ϑ-methods*, Communications in Nonlinear Science and Numerical Simulation 96, article number 105671 (2021).

27. R. D'Ambrosio, S. Di Giovacchino, *Nonlinear stability issues for stochastic Runge-Kutta methods*, Communications in Nonlinear Science and Numerical Simulation 94, article number 105549 (2021).

28. R. D'Ambrosio, C. Scalone, *On the numerical structure preservation of nonlinear damped stochastic oscillators*, Numerical Algorithms 86(3), 933–952 (2021).

29. D. Conte, R. D'Ambrosio, B. Paternoster, *Improved ϑ-methods for stochastic Volterra integral equations*, Communications in Nonlinear Science and Numerical Simulation 93, article number 105528 (2021).

30. R. D'Ambrosio, B. Paternoster, *Multivalue collocation methods free from order reduction*, Journal of Computational and Applied Mathematics 387, article number 112515 (2021).

31. R. D'Ambrosio, C. Scalone, *Two-step Runge-Kutta methods for stochastic differential equations*, Applied Mathematics and Computation 403, article number 125930 (2021).

32. R. D'Ambrosio, M. Moccaldi, B. Paternoster, *Adapted numerical modeling for advection-reaction-diffusion problems on a bidimensional spatial domain*, International Journal of Mathematics and Computer Science 16(4), 1803–1829 (2021).

33. C. Chen, D. Cohen, R. D'Ambrosio, A. Lang, *Drift-preserving numerical integrators for stochastic Hamiltonian systems*, Advances in Computational Mathematics 46, article number 27 (2020).

34. V. Citro, R. D'Ambrosio, *Long-term analysis of stochastic θ-methods for damped stochastic oscillators*, Applied Numerical Mathematics 150, 18-26 (2020).

35. V. Citro, R. D'Ambrosio, *Nearly conservative multivalue methods with extended bounded parasitism*, Applied Numerical Mathematics 152, 221–230 (2020).

36. D. Conte, R. D'Ambrosio, G. Pagano, B. Paternoster, *Jacobian-dependent vs Jacobian-free discretizations for nonlinear differential problems*, Computational and Applied Mathematics 39(3), 171 (2020).

37. V. Citro, R. D'Ambrosio, S. Di Giovacchino, *A-stability preserving perturbation of Runge-Kutta methods for stochastic differential equations*, Applied Mathematics Letters 102, 106098 (2020).

38. D. Conte, R. D'Ambrosio, M.P. D'Arienzo, B. Paternoster, *One-point spectrum nordsieck almost collocation methods*, International Journal of Circuits, Systems and Signal Processing 14, 266–275 (2020).

39. A. Bazzani, R. D'Ambrosio, P. Freguglia, E. Venturino, M. Del Gallo, C. Ercole, F. Matteucci, *A dynamical model for sympatric speciation in an ecological niche*, Theoretical Biology Forum 112(1–2), 13–20 (2019).

40. D. Conte, R. D'Ambrosio, M. Moccaldi, B. Paternoster, *Adapted explicit two-step peer methods*, Journal of Numerical Mathematics 27(2), 69–83 (2019).

41. A. Cardone, R. D'Ambrosio, B. Paternoster, *A spectral method for stochastic fractional differential equations*, Applied Numerical Mathematics 139, 115–119 (2019).

42. R. D'Ambrosio, M. Moccaldi, B. Paternoster, *Adapted IMEX numerical methods for reaction-diffusion problems*, International Journal of Circuits, Systems and Signal Processing 13, 507-515 (2019).

43. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *Stability Issues for Selected Stochastic Evolutionary Problems: A Review*, Axioms 7(4), 91 (2018).

44. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *Collocation Methods for Volterra Integral and Integro-Differential Equations: A Review*, Axioms 7(3), 45 (2018).

45. R. D'Ambrosio, M. Moccaldi, B. Paternoster, F. Rossi, *Adapted numerical modelling of the Belousov–Zhabotinsky reaction*, Journal of Mathematical Chemistry, 56(10), 2867–2897 (2018).

46. R. D'Ambrosio, M. Moccaldi, B. Paternoster, *Parameter estimation in IMEX-trigonometrically fitted methods for the numerical solution of reaction-diffusion problems*, Computer Physics Communications 226, 55–66 (2018).

47. D. Conte, R. D'Ambrosio, B. Paternoster, *On the stability of ϑ-methods for stochastic Volterra integral equations*, Discrete and Continuous Dynamical Systems - Series B 23(7), 2695–2708 (2018).

48. R. D'Ambrosio, M. Moccaldi, B. Paternoster, *Numerical preservation of long-term dynamics by stochastic two-step methods*, Discrete and Continuous Dynamical Systems - Series B 23(7), 2763–2773 (2018).

49. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *On Quadrature Formulas for Oscillatory Evolutionary Problems*, International Journal of Circuits, Systems and Signal Processing 12, 58-64 (2018).

50. J.C. Butcher, R. D'Ambrosio, *Partitioned general linear methods for separable Hamiltonian problems*, Applied Numerical Mathematics 117, 69–86 (2017).

51. Kevin Burrage, A. Cardone, R. D'Ambrosio, B. Paternoster, *Numerical solution of time fractional diffusion systems*, Applied Numerical Mathematics 116, 82–94 (2017).

52. A. Cardone, R. D'Ambrosio, B. Paternoster, *Exponentially fitted IMEX methods for advection-diffusion problems*, Journal of Computational and Applied Mathematics 316, 100–108 (2017).

53. A. Cardone, R. D'Ambrosio, B. Paternoster, *High order exponentially fitted methods for Volterra integral equations with periodic solution*, Applied Numerical Mathematics 114C, 18–29 (2017).

54. R. D'Ambrosio, M. Moccaldi, B. Paternoster, *Adapted numerical methods for advection-reaction-diffusion problems generating periodic wavefronts*, Computers and Mathematics with Applications 74(5), 1029–1042 (2017).

55. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *Stability issues in multivalue numerical methods for ordinary differential equations*, International Journal of Circuits, Systems and Signal Processing 11, 433-444 (2017).

56. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *Multivalue Approximation of Second Order Differential Problems: a Review*, International Journal of Circuits, Systems and Signal Processing 11, 319-327 (2017).

57. R. D'Ambrosio, B. Paternoster, *Numerical solution of reaction-diffusion systems of lambda-omega type by trigonometrically fitted methods*, Journal of Computational and Applied Mathematics 294 C, 436-445 (2016).

58. R. D'Ambrosio, B. Paternoster, C. Scalone, *Numerical modeling of T-cell dynamics by reaction-diffusion problems*, International Journal of Mathematical Models and Methods in Applied Sciences 10, 321-331 (2016).

59. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *Modified collocation techniques for evolutionary problems*, International Journal of Mathematical Models and Methods in Applied Sciences 10, 266-273 (2016).

60. R. D'Ambrosio, G. De Martino, B. Paternoster, *General Nyström methods in Nordsieck form: error analysis*, Journal of Computational and Applied Mathematics 292, 694–702 (2016).

61. D. Conte, R. D'Ambrosio, B. Paternoster, *GPU acceleration of waveform relaxation methods for large differential systems*, Numerical Algorithms, 71(2), 293–310 (2016).

62. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *Adapted numerical methods for oscillatory evolutionary problems*, International Journal of Mechanics 10, 266–273 (2016).

63. R. D'Ambrosio, B. Paternoster, *A general framework for numerical methods solving second order differential problems*, Mathematics and Computers in Simulation 110(1), 113–124 (2015).

64. R. D'Ambrosio, E. Hairer, *Long-term stability of multi-value methods for ordinary differential equations*, Journal of Scientific Computing 60(3), 627–640 (2014).

65. R. D'Ambrosio, G. De Martino, B. Paternoster, *Numerical integration of Hamiltonian problems by G-symplectic methods*, Advances in Computational Mathematics 40(2), 553–575 (2014).

66. R. D'Ambrosio, B. Paternoster, *Exponentially fitted singly diagonally implicit Runge-Kutta methods*, Journal of Computational and Applied Mathematics 263, 277–287 (2014).

67. R. D'Ambrosio, G. De Martino, B. Paternoster, *Order conditions of general Nyström methods*, Numerical Algorithms, 65(3) 579–595 (2014).

68. R. D'Ambrosio, B. Paternoster, G. Santomauro, *Revised exponentially fitted Runge-Kutta-Nyström methods*, Applied Mathematics Letters 30, 56–60 (2014).

69. R. D'Ambrosio, B. Paternoster, *P-stable general Nyström methods for $y'' = f(x, y)$*, Journal of Computational and Applied Mathematics 262, 271–280 (2014).

70. D. Conte, R. D'Ambrosio, G. Izzo, Z. Jackiewicz, *Natural Volterra Runge-Kutta methods*, Numerical Algorithms 65(3), 421–445 (2014).

71. R. D'Ambrosio, B. Paternoster, *Numerical solution of a diffusion problem by exponentially fitted finite difference methods*, Springer Plus 3(1), 425–431 (2014).

72. R. D'Ambrosio, E. Hairer, C. Zbinden, *G-symplecticity implies conjugate-symplecticity of the underlying one-step method*, BIT Numerical Mathematics 53, 867–872 (2013).

73. D. Conte, R. D'Ambrosio, Z. Jackiewicz, B. Paternoster, *Numerical search for algebrically stable two-step continuous Runge-Kutta methods*, Journal of Computational and Applied Mathematics 239, 304–321 (2013).

74. M. Bras, A. Cardone, R. D'Ambrosio, *Implementation of explicit Nordsieck methods with inherent quadratic stability*, Mathematical Modelling and Analysis 18(2), 289–307 (2013).

75. R. D'Ambrosio, G. De Martino, B. Paternoster, *Construction of nearly conservative multivalue numerical methods for Hamiltonian problems*, Communications in Applied and Industrial Mathematics 3(2), e-412, doi:10.1685/journal.caim.412 (2012).

76. R. D'Ambrosio, E. Esposito, B. Paternoster, *Parameter estimation in two-step hybrid methods for second order ordinary differential equations*, Journal of Mathematical Chemistry 50(1), 155–168 (2012).

77. D. Conte, R. D'Ambrosio, Z. Jackiewicz, B. Paternoster, *A practical approach for the derivation of algebraically stable two-step Runge-Kutta methods*, Mathematical Modelling and Analysis 17(1), 65–77 (2012).

78. R. D'Ambrosio, G. Izzo, Z. Jackiewicz, *Search for highly stable two-step Runge-Kutta methods for ODEs*, Applied Numerical Mathematics 62(10), 1361–1379 (2012).

79. D. Conte, R. D'Ambrosio, B. Paternoster, *Two-step diagonally-implicit collocation-based methods for Volterra Integral Equations*, Applied Numerical Mathematics 62(10), 1312–1324 (2012).

80. R. D'Ambrosio, B. Paternoster, *Two-step modified collocation methods with structured coefficients matrix for Ordinary Differential Equations*, Applied Numerical Mathematics 62(10), 1325–1334 (2012).

81. R. D'Ambrosio, E. Esposito, B. Paternoster, *Exponentially fitted two-step Runge-Kutta methods: Construction and parameter selection*, Applied Mathematics and Computation 218(14), 7468–7480 (2012).

82. R. D'Ambrosio, E. Esposito, B. Paternoster, *General linear methods for $y'' = f(y(t))$*, Numer. Algorithms 61(2), 331–349 (2012).

83. R. D'Ambrosio, *On the G-symplecticity of two-step Runge-Kutta methods*, Communications in Applied and Industrial Mathematics 3(1), doi: 10.1685/journal.caim.000403 (2012).

84. R. D'Ambrosio, G. Izzo, Z. Jackiewicz, *Perturbed MEBDF methods*, Computers & Mathematics with Applications 63(4), 851–861 (2012).

85. R. D'Ambrosio, *Metodi numerici altamente stabili per equazioni funzionali*, La Matematica nella Societá e nella Cultura, Serie I, Vol. IV, p. 43–46 (2011).

86. R. D'Ambrosio, L. Gr. Ixaru, B. Paternoster, *Construction of the EF-based Runge-Kutta methods revisited*, Computer Physics Communications 182, 322-329 (2011).

87. R. D'Ambrosio, E. Esposito, B. Paternoster, *Exponentially fitted two-step hybrid for $y'' = f(x, y)$*, Journal of Computational and Applied Mathematics 235, 4888-4897 (2011).

88. R. D'Ambrosio, Z. Jackiewicz, *Construction and implementation of highly stable two-step continuous methods for stiff differential systems*, Mathematics and Computers in Simulation 81(9), 1707–1728 (2011).

89. R. D'Ambrosio, M. Ferro, B. Paternoster, *Trigonometrically fitted two-step hybrid methods for special second order ordinary differential equations*, Mathematics and Computers in Simulation 81, 1068–1084 (2011).

90. D. Conte, R. D'Ambrosio, B. Paternoster, *Construction of diagonally implicit almost collocation methods for Volterra Integral Equations*, Rivista di Matematica della Università di Parma 2, 125-146 (2011).

91. D. Conte, R. D'Ambrosio, Z. Jackiewicz, *Two-step Runge-Kutta methods with quadratic stability functions*, Journal of Scientific Computing 44, 191–218 (2010).

92. R. D'Ambrosio, M. Ferro, Z. Jackiewicz, B. Paternoster, *Two step almost collocations methods for Ordinary Differential Equations*, Numerical Algorithms 53(2-3), 195–217 (2010).

93. R. D'Ambrosio, Z. Jackiewicz, *Continuous Two-Step Runge-Kutta Methods for Ordinary Differential Equations*, Numerical Algorithms 54(2), 169–193 (2010).

94. R. D'Ambrosio, M. Ferro, B. Paternoster, *Two-Step Hybrid Collocation Methods for* $y'' = f(x, y)$, Applied Mathematics Letters 22(7), 1076–1080 (2009).

Conference proceedings and book chapters (peer reviewed)

95. R. D'Ambrosio, S. Di Giovacchino, C. Scalone, *Principles of stochastic geometric numerical integrations: Dissipative problems and stochastic oscillators*, AIP Conference Proceedings 2849, 020002 (2023).

96. D. Conte, R. D'Ambrosio, G. Giordano, S. Mottola, B. Paternoster, *Stiff problems nowadays: Novel numerics and fake news*, AIP Conference Proceedings 2849, 020004 (2023).

97. N. Carissimo, R. D'Ambrosio, M. Guzzo, S. Labarile, C. Scalone, *Forecasting in Shipments: Comparison of Machine Learning Regression Algorithms on Industrial Applications for Supply Chain*, in Gervasi, O., et al. Computational Science and Its Applications – ICCSA 2023, Lecture Notes in Computer Science, vol 13957. Springer, Cham. 462–470.

98. D. Breda, J.K. Canci, R. D'Ambrosio, *An Invitation to Stochastic Differential Equations in Healthcare*, Quantitative Models in Life Science Business, SpringerBriefs in Economics, doi: 10.1007/978-3-031-11814-2_6, 97–110 (2022).

99. R. D'Ambrosio, P. Diaz de Alba, G. Giordano, B. Paternoster, *A Modified SEIR Model: Stiffness Analysis and Application to the Diffusion of Fake News*, in ICCSA 2022, O. Gervasi et al. (Eds.), Lecture Notes in Computer Science, 90–103 Springer Nature Switzerland (2022).

100. R. D'Ambrosio, S. Mottola, B. Paternoster, *Stiffness Ratio and the Diffusion of Fake News*. In: Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras, AIP Conference Proceedings 2425, 090004 (2022).

101. D. Conte, R. D'Ambrosio, M.P. D'Arienzo, B. Paternoster, *Semi-implicit Multivalue Almost Collocation Methods*. In: Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras, AIP Conference Proceedings 2425, 090005 (2022).

102. R. D'Ambrosio, G. Giordano, B. Paternoster, *Numerical Conservation Issues for Stochastic Hamiltonian Problems*. In: Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras, AIP Conference Proceedings 2425, 090007 (2022).

103. G. Pagano, M.A. Budroni, R. D'ambrosio, D. Conte, A. Abou Hassan, S. Ristori, F. Rossi, B. Paternoster, *A model for coupled Belousov-Zhabotinsky oscillators with delay*, World Congress in Computational Mechanics and ECCOMAS Congress 2021, 700, pp. 1–9 (2021).

104. R. D'Ambrosio, S. Di Giovacchino, *Optimal ϑ-Methods for Mean-Square Dissipative Stochastic Differential Equations*, in ICCSA 2021, O. Gervasi et al. (Eds.), Lecture Notes in Computer Science 12949, pp. 121–134, doi: 10.1007/978-3-030-86653-2_9, Springer Nature Switzerland (2021).

105. R. D'Ambrosio, C. Scalone, *Asymptotic Quadrature Based Numerical Integration of Stochastic Damped Oscillators*, in ICCSA 2021, O. Gervasi et al. (Eds.), Lecture Notes in Computer Science 12950, pp. 622–629, doi: 10.1007/978-3-030-86960-1_45, Springer Nature Switzerland (2021).

106. D. Conte, R. D'Ambrosio, G. Giordano, B. Paternoster, *Continuous Extension of Euler-Maruyama Method for Stochastic Differential Equations*, in ICCSA 2021, O. Gervasi et al. (Eds.), Lecture Notes in Computer Science 12949, pp. 135–145, doi: 10.1007/978-3-030-86653-2_10, Springer Nature Switzerland (2021).

107. R. D'Ambrosio, S. Di Giovacchino, D. Pera, *Parallel Numerical Solution of a 2D Chemotaxis-Stokes System on GPUs Technology*, in ICCS 2020, V. V. Krzhizhanovskaya et al. (Eds.), Lecture Notes in Computer Science 12137, doi: 10.1007/978-3-030-50371-0-5, Springer Nature Switzerland (2020).

108. D. Conte, R. D'Ambrosio, G. Giordano, Liviu Gr. Ixaru, B. Paternoster, *User-friendly expressions of the coefficients of some exponentially fitted methods*, in ICCSA 2020, Lecture Notes in Computer Science 12249, Chapter 4, pp. 1–16, doi: 10.1007/978-3-030-58799-4-4, Springer Nature Switzerland (2020).

109. D. Conte, R. D'Ambrosio, M.P. D'Arienzo, B. Paternoster, *Multivalue Almost Collocation Methods with Diagonal Coefficient Matrix*, in ICCSA 2020, Lecture Notes in Computer Science 12249, Chapter 10, pp. 1–14, 10.1007/978-3-030-58799-4-10, Springer Nature Switzerland (2020).

110. D. Conte, R. D'Ambrosio, M.P. D'Arienzo, B. Paternoster, *Singly diagonally implicit multivalue collocation methods*, in International Conference on Mathematics and Computers in Science and Engineering (MACISE 2020), doi: 10.1109/MACISE49704.2020.00018, IEEE Catalog Number: CFP20S31-ART, ISBN: 978-1-7281-6695-7 65–58 (2020).

111. D. Conte, R. D'Ambrosio, M.P. D'Arienzo, B. Paternoster, *Highly stable multivalue collocation methods*, Journal of Physics: Conference Series 1564, 012012 (2020).

112. D. Conte, R. D'Ambrosio, G. Giordano, B. Paternoster, *Regularized exponentially fitted methods for oscillatory problems*, Journal of Physics: Conference Series 1564, 012013 (2020).

113. R. D'Ambrosio, M. Moccaldi, F. Rossi, B. Paternoster, *Stochastic Numerical Models of Oscillatory Phenomena*, in Artificial Life and Evolutionary Computation, Wivace 2017 Workshop, Venice, 19-21 September 2017, Springer, doi: 10.1007/978-3-319-78658-2_5 (2018).

114. R. D'Ambrosio, M. Moccaldi, F. Rossi, B. Paternoster, *On the employ of time series in the numerical treatment of differential equations modelling oscillatory phenomena.* In: Advances in Artificial Life, Evolutionary Computation, and Systems Chemistry - 11th Workshop, WIVACE 2016, Fisciano, Italy, October 4–6, 2016, ed. by F. Rossi, S. Piotto, S. Concilio, Communications in Computer and Information science, Springer (2017).

115. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, *On the numerical treatment of selected oscillatory evolutionary problems.* In: Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras, AIP Conference Proceedings 1836(1), 160004 (2017).

116. R. D'Ambrosio, *Some recent advances in the numerical solution of differential equations.* In: Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras, AIP Conference Proceedings 1738, 020002 (2016).

117. R. D'Ambrosio, *Multi-value numerical methods for Hamiltonian systems.* In: ENUMATH 2013, the 10th European Conference on Numerical Mathematics and Advanced Applications, Lausanne, August 2013, ed. by A. Abdulle, S. Deparis, D. Kressner, F. Nobile, M. Picasso, Lecture Notes in Computer Science and Engineering vol. 103, Springer (2015).

118. R. D'Ambrosio, G. De Martino, B. Paternoster, *A symmetric nearly preserving general linear method for Hamiltonian problems*, Dynamical Systems and Differential Equations, Proceedings of the 10th AIMS International Conference (Madrid, Spain) 330-339 (2015).

119. R. D'Ambrosio, M. Moccaldi, B. Paternoster, *Highly stable multivalue numerical methods.* In: Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras, AIP Conference Proceedings 1648, 150005 (2015).

120. R. D'Ambrosio, B. Paternoster, *Diagonally implicit exponentially fitted Runge-Kutta methods with equation dependent coefficients.* In: AIP Conference Proceedings, Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras. Vol. 1479, p. 1185-1188 (2012).

121. D. Conte, R. D'Ambrosio, B. Paternoster, *Advances on collocation based numerical methods for Ordinary Differential Equations and Volterra Integral Equations*. In: Recent Advances in Computational and Applied Mathematics, ed. by Theodore E. Simos (Springer). p. 41-66 (2010).

122. D. Conte, R. D'Ambrosio, M. Ferro, B. Paternoster, *Piecewise-polynomial approximants for solutions of Functional Equations*. In: I. Capuzzo Dolcetta, M. Transirico, A. Vitolo. Percorsi Incrociati (in ricordo di Vittorio Cafagna). p. 101-113, Rubbettino Editore (2010).

123. R. D'Ambrosio, G. Izzo, Z. Jackiewicz, *Highly Stable General Linear Methods for Differential Systems*. In: AIP Conference Proceedings, Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras. Vol. 1168(1), p. 21-24 (2009).

124. D. Conte, R. D'Ambrosio, M. Ferro, B. Paternoster, *Practical construction of Two-Step Collocation Runge-Kutta methods for Ordinary Differential Equations*. In: Applied and Industrial Mathematics in Italy III, ed. by E. De Bernardis; R. Spigler; V. Valente. p. 278-288 (World Scientific Publishing), ISBN: 9789814280297 (2009).

125. R. D'Ambrosio, B. Paternoster, *Runge-Kutta-Nyström Stability for a Class of General Linear Methods for y"=f(x,y)*. In: AIP Conference Proceedings, Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras. Vol. 1168 (1), p. 444-447 (2009).

126. D. Conte, R. D'Ambrosio, M. Ferro, B. Paternoster, *Modified Collocation Techniques for Volterra Integral Equations*. In: Applied and Industrial Mathematics in Italy III, ed. by E. De Bernardis; R. Spigler; V. Valente. p. 268-277, World Scientific Publishing, ISBN: 9789814280297 (2009).

127. R. D'Ambrosio, M. Ferro, B. Paternoster, *Collocation-Based Two-Step Runge-Kutta Methods for Ordinary Differential Equations*. In: Computational Science and Its Applications ICCSA 2008. Lecture Notes in Computer Science, vol. 5073/2008, p. 736-751, Springer. ISBN: 9783540698401, ISSN: 1611-3349 (2008).

128. R. D'Ambrosio, M. Ferro, B. Paternoster, *A general family of two step collocation methods for Ordinary Differential Equations*. In: AIP Conference Proceedings, Numerical Analysis and Applied Mathematics, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras. Vol. 936, p. 45-49 (2007).

Member of organizing committees

- Minisimposio "*Mathematical modeling, numerical simulations and AI techniques to enhance battery lifetime*", within the 3rd IACM Digital Twins in Engineering Conference (DTE 2025) & 1st ECCOMAS Artificial Intelligence and Computational Methods in Applied Science (AICOMAS 2025), Parigi, 17–21 2025, with D. Conte (University of Salerno) and I. Sgura (University of Salento).
- Invited session "*Advanced models and methods to enhance sustainability*", nell'ambito della conferenza tematica ECCOMAS Math 2 Product (M2P) - Emerging Technologies in Computational Science for Industry, Sustainability and Innovation, Valencia (Spagna), 4–6 giugno 2025, with D. Conte (University of Salerno), S. Mirabella, S. Perotto, G. Speroni (Politecnico di Milano).
- Special session "*Recent Advances in Numerics for Deterministic and Stochastic Dynamical Systems*", within the joint meeting AMS-UMI 2024, Palermo, 23–26 July 2024, with X. Han (Auburn University).
- Invited section S10: "*Dynamical systems and numerical methods for differential equations*", within the congress UMI 2023, University of Pisa, September 4–9 2023, with Rossana Vermiglio (University of Udine).
- Invited session "*Numerical modelling for sustainable innovation*" within the international conference Eccomas - Math 2 Product (M2P) Emerging Technologies in Computational Science for Industry, Sustainability and Innovation, Taormina, May 30–June 1, 2023, with D. Breda (University of Udine) and D. Conte (University of Salerno).
- Co-organizer of the invited Minisymposium "*Numerical approximation of stochastic problems*" within the international conference SciCADE 2019 - International Conference on Scientific Computation and Differential Equations, Reykjavík, 25–29 July 2022, with Hugo de la Cruz (Fundação Getulio Vargas, Rio de Janeiro).
- Co-organizer of the invited Minisymposium "*Non-standard time integration of evolutionary problems*" within Simai Conference 2020+21, Parma, 30 August–3 September 2021, with Dajana Conte (University of Salerno) and Marina Popolizio (Politecnico of Bari).

- Member of the organizing committee of the series of online seminars NEPA2020 "*Numerics for evolutive problems and applications*", December 2020–March 2021, with Dajana Conte (University of Salerno), Hugo de la Cruz (Fundação Getulio Vargas, Rio de Janeiro), Beatrice Paternoster (University of Salerno), Helmut Podhaisky (Martin-Luther-Universität Halle-Wittenberg).
- Member of the organizing committee of the Summer School "*Numerical approximation of stochastic differential equations*" (Speakers: Evelyn Buckwar, David Cohen, Desmond Higham), University of Salerno, 14–17 July 2020, with Dajana Conte and Beatrice Paternoster (University of Salerno). The event has been co-granted by the European Mathematical Society. The event has been postponed, due to COVID-19 emergency.
- Member of the organizing committee of the Minisymposium "*Numerical Advances in Differential Equations*" within the international conference FAATNA2020 - Functional Analysis, Approximation Theory and Numerical Analysis, Matera, 7–10 July 2020, with Lidia Aceto (University of Pisa) and Zdzislaw Jackiewicz (Arizona State University). The event has been postponed to 2022, due to COVID-19 emergency. For 2022 edition, I have not been available to act as organizer of this minisymposium.
- Organizer of the Workshop STRUCTAPP2020 "*A two-day workshop on structure-preserving approximation of evolutive problems and applications*" 23–24 January 2020, University of L'Aquila.
- Co-organizer of the Minisymposium "*Numerical approximation of stochastic systems*" within the international conference SciCADE 2019 - International Conference on Scientific Computation and Differential Equations, Innsbruck, 22–26 July 2019, with Hugo de la Cruz (Fundação Getulio Vargas, Rio de Janeiro).
- Co-organizer of the Minisymposium "*Numerical approximation of stochastic problems*" within the internal conference ICIAM 2019 - International Conference on Industrial and Applied Mathematics, Valencia, 15–19 July 2019, with Hugo de la Cruz (Fundação Getulio Vargas, Rio de Janeiro).
- Member of the organizing committee of the international conference "*HA-LU 2019* honoring Ernst Hairer for his 70th birthday and Christian Lubich for his 60th birthday, L'Aquila, 17–21 June 2019, with Nicola Guglielmi (Gran Sasso Science Institute, L'Aquila), Maria Lopez-Fernandez ("Sapienza" University of Rome), Pierangelo Marcati (Gran Sasso Science Institute, L'Aquila).
- Co-organizer of the Minisymposium "*Recent advances in numerical modeling for differential problems* within the international conference UMI-SIMAI-PTM Math- ematical Meeting 2018, Wroclaw, 17–20 September 2018, with Zbigniew Bar- toszewski (Gdansk University of Technology).
- Co-organizer of the Minisymposium "*Non-standard time integration of evolutionary problems*" within Simai Conference 2018, Rome, 2–6 July 2018, with Maria Lopez-Fernandez ("Sapienza" University of Rome).
- Co-organizer of the Minisymposium "*Numerical integration of evolutionary problems*" within the international conference SciCADE 2017 - International Confer- ence on Scientific Computation and Differential Equations, Bath, 11–15 September 2017, with Juan Ignacio Montijano (University of Zaragoza) and Luis Randez (University of Zaragoza).
- Co-organizer of the special session "*Integradores temporales de ecuaciones diferenciales*" nell'ambito del Congreso Bienal de la Real Sociedad Matematica Espanola, Zaragoza, 30 January – 3 February 2017, with Inmaculada Higueras (University of Navarra) and Severiano Gonzalez-Pinto (University of La Laguna).
- Co-organizer of the workshop NUMEP2015 - "*Numerical modeling of evolutionary problems: perspectives and applications*", University of Salerno, 26-27 October 2015.

Scientific talks

Invited conference talks

- *Numerical preservation principles for stochastic dynamical systems*, Congreso Bienal de la Real Sociedad Matematica Espanola, Special Seccion 13 - Advanced methods for differential problems and their applications, Pamplona (Spain), 24–26 January 2024.
- *Mathematics of misinformation*, Numerical Methods and New Technologies for Cultural Heritage, Philology and Industry 4.0, Università degli Studi di Salerno, May 5, 2023.

- *Structure preservation in stochastic numerics*, Geometric methods and stochastic reduction for fluid models, Gran Sasso Science Institute, September 14–17, 2022, keynote speaker.
- *Destabilising nonnormal stochastic differential equations*, SCICADE 2021, Invited Symposium MS-08 "Numerical methods for stochastic (partial) differential equations" organizzato da D. Cohen, A. Lang e G. Vilmart, Reykjavík (Islanda), July 25–29, 2022. The coauthor C. Scalone has given the talk in place of the undersigned.
- *Principles of stochastic numerics and applications to dynamical systems*, SDS2022 Workshop on structural dynamical systems: Computational Aspects, Rosa Marina (Brindisi), June 7–10, 2022, mini-course in plenary form (4 hours).
- *Integrazione numerica structure-preserving di sistemi dinamici stocastici*, Giornata di Studio Progetto GNCS 2020, December 21, 2021 (online), invited by the coordinator of the project, prof. D. Breda (University of Udine).
- *Principi di integrazione geometrico-numerica stocastica*, Giornata INdAM "La ricerca matematica oggi a Salerno" in memory of Professor Mariella Transirico, Fisciano (SA), December 6–7, 2021.
- *Principles of Stochastic Geometric Numerical Integrations: Dissipative Problems and Stochastic Oscillators*, invited plenary talk at ICNAAM 2021 - 19th International Conference of Numerical Analysis and Applied Mathematics, Rhodes, 20–26 September 2021.
- Plenary speaker at SDIDE2021, 6th Workshop on Stability and Discretization Issues in Differential Equations, Budapest, June 7–11, 2021. The event has been postponed to 2022 due to the Covid-19 health emergency. For the 2022 edition, the undersigned has not confirmed his availability to hold the communication by invitation, due to concomitant commitments.
- Plenary speaker at SDIDE2020, 6th Workshop on Stability and Discretization Issues in Differential Equations, Budapest, June 8–12, 2020. The event has been postponed to 2021 due to the Covid-19 health emergency.
- Plenary speaker at ICNAAM 2020 - 18th International Conference of Numerical Analysis e Applied Mathematics, Symposium "13th Symposium on Recent Trends in the Numerical Solution of Differential Equations", Rhodes, September 17–23, 2020. The event in presence has been postponed due to the Covid-19 health emergency. In the online event, the undersigned has given an invited talk entitled "*Stiffness ratio and the diffusion of fake news*" within the 13th Symposium on Recent Trends in the Numerical Solution of Differential Equations, organized by L. Brugnano and E. Weinmuller.
- *Principles of Stochastic Geometric Numerical Integration*, International Webinar on Applied Mathematics and Modelling, September 24, 2020.
- *Decisione e incertezze: la matematica numerica che non sai di usare*, Matematica e Scienze nei Licei, Salerno, March 5–6, 2020, invited by the Scientifc Committee. The event has been cancelled due to Covid-19 health emergency.
- *A journey through deterministic and stochastic structure-preserving numerical schemes*, GNIDE 2019 - Geometric Numerical Integration of Differential Equations, Beijing (China), September 9–13, 2019. The undersigned was unable to attend the conference, so the talk was given by the co-author D. Cohen on his behalf.
- *Stabilità non lineare di metodi multistep stocastici*, UMI 2019 Conference, Session S-10 "Sistemi dinamici e metodi numerici per le equazioni differenziali", invited by N. Guglielmi and L. Lopez, Pavia, September 2–7, 2019.
- *Long-term analysis of time discretizations for stochastic Hamiltonian problems*, ICIAM2019 Conference, Symposium MS-06 "Efficient time-stepping methods for differential problems with special features", invited by the organizers D. Hernandez Abreu and D. Conte, Valencia (Spain), July 15–19, 2019:
- *Adapted discretization of partial differential equations generating periodic wavefronts.* Comunicazione plenaria al convegno Efficient high-order time discretization methods for PDEs, Anacapri, May 8–10, 2019.
- *A journey through structure-preserving discetization.* Comunicazione plenaria al convegno ICRAAM 2019 - International Conference on Recent Advances in Applied Mathematics, Lahore (Pakistan), February 20–22, 2019.

- *Hidden structures of stochastic numerical methods.* Plenary speaker at "Calcolo Scientifico e Modelli Matematici: alla Ricerca delle Cose Nascoste attraverso le Cose Manifeste 2.0", Como, May 16–18, 2018.
- *Invariant preserving numerical approximation of stochastic differential equations.* RO-LCG 2017 Grid, Cloud and High-Performance Computing in Science, Symposium "Numerical analysis and applications" organizzato da Liviu Gr. Ixaru, Sinaia, October 26–28, 2017.
- *An IVP solver for systems with discontinuous right-hand side, with sliding motion on co-dimension 2 surfaces and approximation of periodic orbits.* SCICADE 2017 - Symposium MS-31 "Dynamical Systems with discontinuities" organized by C. Elia and L. Lopez, Bath, September 11–15, 2017.
- *Preserving structures of stochastic differential equations along numerical solutions.* Congreso Bienal de la Real Sociedad Matematica Espanola, Special Session S15 - Integradores temporales de ecuaciones diferenciales, Zaragoza (Spain), January 30–February 3, 2017.
- *On the numerical treatment of selected oscillatory evolutionary problems.* ICNAAM 2016 - 16th International Conference of Numerical Analysis e Applied Mathematics, Symposium "Nineth Symposium on Recent Trends in the Numerical Solution of Differential Equations" organized by L. Brugnano and E. Weinmuller, Rodi (Greece), September 19–25, 2016.
- *Numerical treatment of reaction-diffusion problems with discontinuous forcing terms.* XIII SIMAI Conference, Symposium MS-27 "Dynamical Systems with discontinuities: theory, numerical methods and applications" organizzato da L. Lopez e S. Maset, Milano, September 13–16, 2016.
- *Structure-preserving numerical integration of evolutionary problems.* Plenary speaker at SDIDE2016 - Stability and Discretization Issues in Differential Equations, Trieste, June 21–24, 2016.
- *Recent advances in numerical modeling for differential problems.* Plenary speaker at the workshop Soft Computing Days, Fisciano (Italy), May 23–25, 2016.
- *Some recent advances in the numerical solution of differential equations.* Plenary speaker at ICNAAM 2015 - 13th International Conference of Numerical Analysis and Applied Mathematics, Rodi (Greece), September 22–28, 2015.
- *Numerical treatment of discontinuous dynamical systems generating periodic orbits.* SCICADE 2015, Symposium MS07 "Discontinuous dynamical systems: Theory and numerical methods" organized by L. Lopez and C. Elia, Potsdam (Germany), September 14–18, 2015.
- *Sul trattamento numerico di sistemi dinamici regolari a tratti.* XX UMI Conference, Symposium S10 "Metodi numerici per le equazioni differenziali ordinarie" organized by A. Bellen, Siena, September 7–12, 2015.
- *Structure-preserving numerical methods for evolutionary problems.* Plenary speaker for the alla Second Tbilisi-Salerno conference on Modeling in Mathematics, Tbilisi (Georgia), March 15-18, 2015.
- *Highly stable multivalue numerical methods.* ICNAAM 2014 - 12th International Conference of Numerical Analysis and Applied Mathematics, Symposium "Seventh Symposium on Recent Trends in the Numerical Solution of Differential Equations" organized by L. Brugnano and E. Weinmuller, Rhodes (Greece), September 22–28, 2014.
- *Long-term stability of multivalue methods for Hamiltonian problems.* ICNAAM 2014 - 12th International Conference of Numerical Analysis and Applied Mathematics, Symposium "Structure preserving integrators for Differential Equations" organized by E. Celledoni, R. Kozlov, T. Matsuo, Rhodes (Greece), September 22–28, 2014.
- *Diagonally implicit exponentially fitted Runge-Kutta methods with equation dependent coefficients.* ICNAAM 2012 - 10th International Conference of Numerical Analysis and Applied Mathematics, Symposium "Numerical Methods and Computational Procedures for Special Problems in Physics and Chemistry" organized by B. Paternoster, Kos (Grecia), September 19–25, 2012.
- *P-stable Nordsieck General Linear Methods for second order Ordinary Differential Equations.* ICNAAM 2012 - 10th International Conference of Numerical Analysis and Applied Mathematics, Symposium "Fifth Symposium

on Recent Trends in the Numerical Solution of Differential Equations" organized by L. Brugnano and E. Weinmuller, Kos (Greece), September 19–25, 2012.

- *Numerical modeling of some evolutionary problems in Immunology.* Plenary speaker for the First Salerno-Tbilisi conference on Modeling in Mathematics, University of Salerno, February 25–27, 2012.

Seminars in Italy and abroad

15/11/2024 **Université de Neuchâtel**
"Stochastic numerics and application"
invited by Jung Kyu Ganci.

25/04/2024 **Universidad de Malaga**
"Principles of geometric numerical integration"
invited by Maria Lopez Fernandez.

29/06/2023 **University of Salerno**
"From continuous to discrete, from discrete to networks"
invited by invited by Raffaele Cerulli.

12/06/2023 **University of Campania "Luigi Vanvitelli"**
"Principles of stochastic geometric numerical integration"
invited by Gerardo Toraldo.

5/10/2021 **Université de Genève, Section de Mathématiques**
"Numerical conservation issues for stochastic differential equations"
invited by Gilles Vilmart.

6/7/2021 **University of Naples "Federico II", SNAP - Seminar Series on Numerics and APplications (online)**
"Principles of stochastic geometric numerical integration".

10/6/2021 **Ghana Numerical Analysis (online)**
"Principles of Deterministic and Stochastic Geometric Numerical Integration"
invited by Stephen Moore.

3/05/2021 **Universitá di Udine, CDLab (online)**
"Principles of stochastic geometric numerical integration"
invited by Dimitri Breda, nell'ambito dell'evento online "Italy meets Switzerland @CDLab: dynamical systems, stochastic differential equations and applications".

17/11/2020 **Universiteit Twente (online)**
"Structure-preserving numerics for stochastic Hamiltonian problems"
invited by Paolo Cifani.

4/11/2020 **Gran Sasso Science Institute (online)**
"Structure-preserving numerics for stochastic differential equations"
invited by Nicola Guglielmi and Francesco Tudisco.

3/09/2020 **University of Udine, CDLab (online)**
"Geometric numerical integration of stochastic differential problems"
invited by Dimitri Breda and Rossana Vermiglio.

5/12/2017 **"Sapienza" University ofRome, Department of Mathematics**
"Recent advances in structure-preserving numerical integration of differential problems: deterministic and stochastic aspects"
invited by Maria Lopez Fernandez.

11/5/2017 **Arizona State University, School of Math. and Statistical Sciences**
"Preserving structures of stochastic differential equations along numerical solutions"
invited by Zdzislaw Jackiewicz.

17/12/2015 **Politecnico di Milano, Department of Mathematics**
"Structure-preserving numerical integration of evolutionary problems"
invited by Luca Formaggia.

26/1/2015 **Georgia Institute of Technology, School of Mathematics**
"Nonlinear stability issues for the numerical solution of evolutionary problems"
invited by Luca Dieci.

1/12/2014 **Georgia Institute of Technology, School of Mathematics**
"Structure-preserving numerical integration of ordinary and partial differential equations"
invited by Luca Dieci.

8/10/2014 **Maxwell Institute, Edimburgo (UK)**
"Structure preserving numerical methods for differential equations"
invited by Heiko Gimperlin, nell'ambito della Graduate School on Evolution Equations.

9/4/2013 **Université de Genève, Section de Mathématiques**
"Nearly conservative general linear methods for Hamiltonian problems"
invited by Ernst Hairer.

25/1/2013 **University of Auckland, Department of Mathematics**
"Partitioned general linear methods for separable Hamiltonian problems"
invited by John Butcher.

9/11/2010 **University of Auckland, Department of Mathematics**
"Time-reversal symmetry of partitioned General Linear Methods"
invited by John Butcher.

14/2/2011 **University of Naples "Federico II", Department of Mathematics and Applications**
"Proprietá conservative dei Metodi Generali Lineari"
invited by Elvira Russo.

2/11/2010 **University of Auckland, Department of Mathematics**
"G-symplectic General Linear Methods for separable Hamiltonian problems"
invited by John Butcher.

4/11/2008 **Arizona State University, School of Math. and Statistical Sciences**
"Continuous two-step Runge-Kutta methods for Ordinary Differential Equations"
invited by Zdzislaw Jackiewicz.

Contributed talks

From 2007 to today, the undersigned has given contributed talks at the following international and national conferences and workshops:

- M2P - Math 2 Product: Emerging Technologies in Computational Science for Industry, Sustainability and Innovation, Taormina, May 30 – June 1, 2023;
- Trends on dissipativity in systems and controls, Brig (Switzerland), May 23–25, 2022;
- 4th International Conference on Mathematical Models and Computational Techniques in Science and Engineering, London, 22–23, 2020;
- SCICADE 2019 International Conference on Scientific Computation And Differential Equations, Innsbruck (Austria), July 22–26, 2019;
- NSIDE2019 - Workshop on numerical solution of integral and differential equations, Gdansk (Poland), July 17–19, 2019;
- ICIAM 2019 Conference, Symposium MS-06 'Numerical approximation of stochastic problems", Valencia (Spain), July 15–19, 2019;
- SDS2018 Workshop on structural dynamical systems: Computational Aspects, Capitolo - Monopoli (Bari), June 12–15, 2018;
- WIVACE 2017 - XII Workshop on Artificial Life and Evolutionary Computation, Venice, September 19–21, 2017;
- 9th NAI Workshop - Numerical Analysis of Evolution Equations, Innsbruck (Austria), November 8–11, 2016;

- SDS2016 Workshop on structural dynamical systems: Computational Aspects, Capitolo - Monopoli (Bari), June 14–17, 2016;
- NUMEP2015 - Numerical Modeling in Evolutionary Problems: perspectives and applications, University of Salerno, October 26–27, 2015;
- IWANASP 2015 - Fifth International Workshop on Analysis and Numerical Approximation of Singular Problems, Lagos (Portugal), October 22-24, 2015;
- NUMDIFF14 - Numerical Solution of Differential and Differential-Algebraic Equations, Halle (Germany), September 7–11, 2015;
- SIMAI Biannual Congress, Taormina (Italy), July 7–10, 2014.
- 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid (Spain), July 7–11, 2014;
- NETNA2015 - New Trends in Numerical Analysis, Falerna (Italy), June 18–21, 2015;
- 8th Workshop SDS2012 Structural Dynamical System: Computational Aspects, Capitolo, Monopoli (Italy), June 12–15, 2014;
- SCICADE 2013 International Conference on Scientific Computation and Differential Equations, Valladolid (Spain), September 16–20, 2013;
- ENUMATH 2013 European Numerical Mathematics and Advanced Applications, Lausanne (Switzerland), August 26–30, 2013;
- ANODE13 Auckland Numerical Ordinary Differential Equations in celebration of the 80th birthday of John C. Butcher, Auckland (New Zealand), January 7–11, 2013;
- 7th Workshop SDS2012 Structural Dynamical Systems: Computational Aspects, Capitolo, Monopoli (Bari), June 12–15, 2012;
- SIMAI Biannual Congress, Torino, June 25–28, 2012;
- ICCAM 2012 - International Congress on Computational and Applied Mathematics, Gent (Belgium), July 9–13, 2012.
- 13th Seminar NUMDIFF on Numerical Solution of Differential and DifferentialAlgebraic Equations, Halle (Germany), September 10–14, 2012;
- Giornata di Studio SIMAI “Prospettive di sviluppo della matematica applicata in Italia 2011”, Rome, April 8, 2011;
- CIME Course “Current challenges in stability issues for numerical differential equations”, Cetraro (Italy), organized by L. Dieci e N. Guglielmi, June 27 – Luglio 2, 2011;
- MMA2011 - 16th International Conference on Mathematical Modelling and Analysis, Sigulda (Latvia), May 25–28, 2011;
- XIX UMI Conference, Bologna, September 12–17, 2011:
- SC2011 International Conference on Scientific Computing, S. Margherita di Pula (Italy), October 10–14, 2011;
- BIT 50 - Trends in Numerical Computing, Lund (Sweden), June 17–20, 2010;
- 12th Seminar NUMDIFF on Numerical Solution of Differential and Differential-Algebraic Equations, Halle (Germany), September 14–18, 2009;
- ICNAAM 2009 - 7th International Conference of Numerical Analysis and Applied Mathematics, Rethymno, Crete, September 18–22, 2009;

- ICCAM 2009 - 14th International Congress on Computational and Applied Mathematics, Antalya (Turkey), September 29 – October 2, 2009;
- SDS 2008 - Structural Dynamical Systems: Computational Aspects Workshop, Capitolo, Monopoli (Italy), June 17–20, 2008;
- GLADE Conference and Workshop 2008, Auckland (New Zealand), July 14–25, 2008;
- SIMAI 9th Congress, Rome, September 15–19, 2008.

Editorial activity

- Specialist Editor of Computer Physics Communications, Elsevier (since November 2015).
- Associate Editor of Applied Numerical Mathematics, Elsevier (since February 2016).
- Editor of Experimental Results, Cambridge University Press (from February 2019 to May 2023).
- Associate Editor of Opuscula Mathematica, AGH University of Science and Technology (Krakow, Poland; since November 2014).

Reviewer for Mathematical Reviews and referee of manuscript submitted to various journals, such as: SIAM Journal on Numerical Analysis (SIAM), SIAM Journal on Scientific Computing (SIAM), Mathematics of Computation (AMS), Numerische Mathematik (Springer), BIT Numerical Mathematics (Springer), Numerical Algorithms (Springer), Advances in difference equations (Springer), Calcolo (Springer), Applied Mathematics and Computation (Elsevier), Applied Numerical Mathematics (Elsevier), Journal of Computational and Applied Mathematics (Elsevier), Journal of Computational Physics (Elsevier), Computer Physics Communications (Elsevier), Computers & Mathematics with Applications (Elsevier), Applied Mathematics Letters (Elsevier), Mathematics and Computers in Simulation (Elsevier), Discrete and Continuous Dynamical System - B (Aims).

“Outstanding Contribution in Reviewing" for Applied Numerical Mathematics (Elsevier), August 2014.

Supervision of Ph.D. students and post-doc

- Advisor of Helena Biscevic (Ph.D. in Mathematics, Gran Sasso Science Institute), since A.Y. 2021–22;
- advisor of Stefano Di Giovacchino (Ph.D. in Mathematics and Models, University of L’Aquila), XXXIV Cycle, from November 2018 to March 2022. Title of the thesis “*Structure-preserving numerical approximation of stochastic evolution problems*", discussed on June 23, 2022;
- tutor of Ivan Gallo (Ph.D. in Mathematics and Models, University of L’Aquila), XXXV Cycle. Title of the thesis “*Evaluation of Non-linear Credit Value Adjustments under multiple credit risks*", discussed on July 25, 2023;
- tutor of Alessandro Di Pasquale (Ph.D. in Mathematics and Models, University of L’Aquila), XXXV Cycle, from 1 November 2019 to 16 December 2020;
- responsible of the post-doc grant of Dr. Stefano Di Giovacchino (University of L’Aquila), since November 1, 2022;
- responsible of the post-doc grant of Dr. Afsaneh Moradi (University of L’Aquila), from May 1, 2022 to April 30, 2023;
- responsible of the post-doc grant of Dr. Carmela Scalone (University of L’Aquila), from July 1, 2019 to February 2, 2022;
- co-advisor of the Ph.D. thesis of Giuseppe De Martino “Multi-value numerical modeling for special differential problems”, Ph.D. in Mathematics - XIII Cycle, University of Salerno (2015);
- co-advisor of the Ph.D. thesis of Martina Moccaldi, Ph.D. in Mathematics, Physics and Applications, University of Salerno - “Luigi Vanvitelli” University of Campania (2018).

Teaching activity

Courses for degree and master degree programs

- University of L'Aquila:
  - *Analisi Numerica*, Degree in Mathematics, 6 CFU - since A.Y. 2018–19;
  - *Computational Methods in Epidemiology*, Master's Degree in Mathematical Modelling, 6 CFU A.Y.. 2022–23, 3 CFU A.Y. 2023–24;
  - *High Performance Computing and Application to Differential Equations*, Master's Degree in Mathematical Engineering, 6 CFU, A.Y. 2018–19;
  - *Numerical Methods for Differential Equations* (also with denomination *Advanced Numerical Analysis*), Master's Degree in Mathematics, 6 CFU - from A.Y. 2017–18 to A.Y. 2021–22; 3 CFU, A.Y. 2022–23;
  - *Numerical Methods for Linear Algebra and Optimisation*, Master's Degree in Mathematical Engineering, 6 CFU from A.Y. 2017–18 to A.Y. 2019–20; 3 CFU, A.Y. 2020–21;
  - *Numerical Methods for PDEs* (also with denomination *Advanced Numerical Analysis*), Master's Degree in Mathematics/Mathematical Engineering, 3 CFU - A.Y. 2024–25;
  - *Numerical methods for Stochastic Modelling* (also with denomination *Advanced Numerical Analysis*), Master's Degree in Mathematics/Mathematical Engineering, 3 CFU - since A.Y. 2021–22.
- University of Salerno:
  - *Analisi Numerica*, Degree in Computer Science, 6 CFU, A.Y. 2015–16;
  - *Calcolo Scientifico*, Degree in Computer Science, 6 CFU, A.Y. 2016–17;
  - *Calcolo Numerico II*, Degree in Mathematics, 2 CFU, A.Y. 2016–17; 1 CFU, A.Y. 2015–16;

Courses for doctoral schools

- *Introduction to the Finite Element Method for Partial Differential Equations*, Ph.D. in Mathematics and Models, University of L'Aquila, January-February 2023 (10 hours).
- *Numerical solution of stochastic differential equations*, University of Udine, November 2022 (10 hours).
- *Numerics for stochastic differential equations*, Gran Sasso Science Institute, March-April 2022 (12 hours).
- *Introduction to the Finite Element Method for Partial Differential Equations*, Ph.D. in Mathematics and Models, University of L'Aquila, January-February 2022 (12 hours).
- *Numerics for stochastic differential equations*, Gran Sasso Science Institute, April 2021 (10 hours).
- *Numerics for stochastic differential equations*, Ph.D. in Mathematics and Models, University of L'Aquila, February 2021 (10 hours).
- *Metodi Numerici per Equazioni Differenziali*, Scuola Superiore of the University of Udine, May 2020 (10 hours).
- *Advanced Numerical Analysis*, Ph.D. in Mathematics and Models, University of L'Aquila, January 2020 (6 hours).
- *Numerics for stochastic ODEs*, Gran Sasso Science Institute, February 2019 (10 hours).
- *Algebra Lineare Numerica e Applicazioni*, Ph.D. program in Mathematics, Physics and Applications, University of Salerno, A.Y. 2016–2017 (20 hours).
- *Metodi numerici di integrazione geometrica per problemi Hamiltoniani*, Ph.D. program in Mathematics, Physics and Applications, University of Salerno - Second University of Naples, A.Y. 2015–2016 (20 hours).
- *Integrazione numerica di Equazioni Differenziali Stocastiche*, Ph.D. program in Mathematics, Physics and Applications, University of Salerno - Second University of Naples, A.Y. 2014–2015 (20 hours).

Supervision of degree and master degree thesis

The undersigned has acted as supervisor of many Bachelor's and Master's degree theses in Mathematics, Mathematical Engineering, Mathematical Modeling and Computer Science, also in the context of double degree or joint degree international cooperation programmes. An updated list is reported in the web page `https://www.disim.univaq.it/RaffaeleDAmbrosio/449/`.

Service activity

- President of the Mathematical Engineering Teaching Board, University of L'Aquila, since 27/9/2021 (DR Prot n. 3385 of 27/09/2021 and Rep. 453/2021 Prot. n. 4154 of 12/11/2021).
- Member of InterMaths-MathMods-RealMaths Internal Quality Assurance Board, since 28/10/2022.
- Reviewer for VQR 2015–2019.
- Vice-President of the Mathematical Engineering Teaching Board, University of L'Aquila, since 6 November 2018. From 25 January 2020 to 31 August 2020, the undersigned has been President pro-tempore, in place of the President on leave.
- Delegate of the Director of DISIM for seminars and cultural initiatives, from June 22, 2021 (DD 218/2021, prot. 2147, June 22, 2021; renewed with DISIM deliberation, October 16, 2024).
- Member of the evaluation committee for the attribution of salary increases for the year 2021, University of L'Aquila, appointed with D.R. 64242 - Rep. n. 905/2022 of 23/06/2022.
- Member of the evaluation committee for the award of 15 scholarships to support foreign students A.A. 2022-2023, University of L'Aquila, appointed with D.R. 766 - Rep. n. 57268 of 31/05/2022.
- Member of the evaluation committee for the award of 15 scholarships to support foreign students A.A. 2020-2021, appointed with D.R. 668/2020 - Prot n. 59675 of 06/07/2020.
- Member of the evaluation committee for the University Corridors for Refugees - 5.0 (Kenya, Niger, Nigeria, South Africa, Uganda, Zambia e Zimbabwe- 2023/2025) - Call for one scholarship to refugee students enrolled in a Master's Degree course in English at the University of L'Aquila, for the academic years 2023-24 and 2024-25, nominated with D. R. n. 384/2023 of April 11, 2023;
- Scientific Responsible of the Mathematical Modeling Laboratory, University of L'Aquila, since February 13, 2019.
- Responsible of the Committee for the scheduling of the lectures in Mathematical Engineering, University of L'Aquila, from January 20, 2020 to June 11, 2021.
- Member of the Quality Assurance Group of the Mathematical Engineering Teaching Cousil, University of L'Aquila, since 6 November 2018.
- Member of the Teaching Programming Committee of the Mathematical Engineering Teaching Cousil, University of L'Aquila, since 10 April 2019.
- Member of the Organizing Committee of the seminar series "New Faculty Seminars @DISIM" since the A.Y. 2018–2019, DISIM-University of L'Aquila;
- Delegate to the outcoming orientation and the relationships with the industries of the Counsil of Didactic Area, Master Degree in Mathematical Engineering, University of L'Aquila, from November 6, 2018 to July 16, 2020.
- Member of the Board of the Ph.D. in "Mathematics and Applications", University of L'Aquila, since the XXXIV Cycle.
- Member of the Orientation Committee of the Degree in Mathematics, University of L'Aquila, since November 2017.
- Referent for the Department of Mathematics, University of di Salerno, for the program of quality evaluation VQR 2011–2014.

- Referent for the Department of Mathematics, University of di Salerno, for the catalogue of research products IRIS for the A.Y. 2016–2017.
- Member of the E-Learning Committee, Degree in Computer Science, University of Salerno, for the years 2015–2017.
- Member of the following selection committees:
  - selection of a researcher at the University of L'Aquila - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter a) of the Law 240/2010, nominated by D.R. n. 704/2018 - Prot. n. 28910, 29/06/2018;
  - selection of a researcher at the University of Basilicata - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter a) of the Law 240/2010, nominated by D.R. 193/2019 - Rep. n. 185 of 16/05/2019;
  - selection of a researcher at the University of Udine - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter a) of the Law 240/2010, nominated by D.R. 986/2019 - Prot. n. 0054935 of 12/12/2019;
  - selection of a researcher at the University of L'Aquila - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter b) of the Law 240/2010, nominated by D.R. n. 118/2020 - Prot. n. 9105 of 29/01/2020;
  - selection of a researcher at the University of Naples "Federico II" - sector 01/A5 Numerical Analysis, x art. 24, comma 3, letter a) of the Law 240/2010, nominated by DR/2021/4258 del 20/10/2021;
  - selection of a researcher at the University of Salerno - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter a) of the Law 240/2010, nominated by Decree of the Department of Mathematics 76/2021, Prot. 0331213 of 8/11/2021;
  - procedure ex Art. 24, comma 5, law 240/2010 for the appointment of an Associate Professor at University of Rome Tor Vergata - sector 01/A5 Numerical Analysis, nominated with D.R. 313, January 31, 2022;
  - selection of an Associate Professor at the University of Naples Parthenope - sector 01/A5 Numerical Analysis, nominated with D.R. 842 of 25/11/2021;
  - procedure ex Art. 24, comma 5, law 240/2010 for the appointment of an Associate Professor at Gran Sasso Science Institute - sector 01/A5 Numerical Analysis, nominated with D.R. 48/2022 del 31/3/2022;
  - selection of a researcher at the University of Cagliari - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter b) of the Law 240/2010, nominated b D.R. n. 469 of 6/62022;
  - procedure ex Art. 24, comma 6, law 240/2010 for the appointment of an Associate Professor at University of Basilicata - sector 01/A5 Numerical Analysis, nominated with D.R. 286/2022 of 15/6/2022;
  - selection of a researcher at the University of Salerno - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter b) of the Law 240/2010, nominated by D.R. prot. n. 207403 - Rep. n. 1221 of 29/6/2022;
  - selection of a researcher at the University of Calabria - sector 01/A5 Numerical Analysis, ex art. 24, comma 3, letter b) of the Law 240/2010, nominated by D.R. prot. n. 1003 del 13/7/2022.
  - procedure ex Art. 18, comma 4, law 240/2010 for the appointment of an Associate Professor at University of Calabria - sector 01/A5 Numerical Analysis, nominata con D.R. prot. n. 0235247 del 22/11/2022;
  - selection procedure ex Art. 24, comma 6, law 240/2010 for the appointment of an Associate Professor at University of Siena - sector 01/A5 Numerical Analysis, nominated with D.R. 571, November 15, 2022;
  - member of the selection committee of post-doc positions, A.Y. 2022–23, INdAM - Istituto Nazionale di Alta Matematica "Francesco Severi" within GNCS research scopes, approved by the Administration Council n. 253 of December 12, 2022;
  - procedure ex Art. 24, comma 5, law 240/2010 for the appointment of an Associate Professor at University of L'Aquila - sector 01/A5 Numerical Analysis, nominated with D.R. 261, March 17, 2023;
  - member of the selection committee for the Ph.D. program in Mathematics, Cycle XXXIX, A.Y. 2023–24, administrative institution University of Ferrara (in consortium with the University of Modena and Reggio Emilia and the University of Parma), nominated with D.R. 1063 of July 10, 2023.
  - procedure ex Art. 24, comma 6, law 240/2010 for the appointment of an Associate Professor at University of Calabria - sector 01/A5 Numerical Analysis, nominated with D.R. 1158, September 5, 2023.
- orientation activities:

- Canoni Pop - La Matematica al servizio della coralità, with UnivAQ Street Science, edizions 2022 (at Auditorium del Parco, L'Aquila), 2023 (at Auditorium del Parco, L'Aquila), 2024 (at Parco del Castello, L'Aquila).
- Terza Missione - Valorizzazione delle Conoscenze, Department of Mathematics, University of Salerno, May 30, 2024.
- Invited speaker for a meeting within the PCTO activities at the l'Istituto Istruzione Superiore "Enrico Fermi", Sulmona, on May 29, 2023, title of the talk: "La Matematica che non sai di usare: like, reel e social network" (online).
- Speaker for an orientation meeting at the Istituto Istruzione Superiore "Amedeo d'Aosta", L'Aquila, on May 3, 2023.
- Invited speaker for a meeting within the PCTO activities at the Liceo Scientifico "Vitruvio", Avezzano on 26/1/2022, title of the talk: "La Matematica che non sai di usare: like, reel e social network" (online).
- Invited speaker for a meeting within the PCTO activities at the Liceo Classico "A. Torlonia", Avezzano on 19/1/2022, title of the talk: "La Matematica che non sai di usare: like, reel e social network" (online).
- Creator of the Contest "Crea il tuo meme matematico", Mathematics Teaching Counsil, University of L'Aquila, since 2017, for four editions.
- Orientation meeting at the Liceo D. Cotugno of L'Aquila, on February 8, 2021, for the presentation of the degree programs offered by DISIM.
- Plenary speaker within the Open Days Univaq (online, due to Covid-19 emergency), 5 May 2020, title of the talk "La Matematica dei Social Network".
- Partecipation to the event Salone dello Studente in Rome (Fiera Di Roma, 13 November 2018), as represenative of DISIM (University of L'Aquila) for the Mathematics area.
- Plenary speaker within the event Settimana della Cultura Scientifica e Tecnologica organized by the Liceo Scientifico "Vitruvio" of Avezzano, Castello Orsini, 13 March 2018, title of the "La Matematica che non sai di usare: da Twitter ad Amazon, da Shazam a Google".
- Orientation meeting at the Val Vibrata College Liceo Scientifico G. D'Annunzio, Corropoli, 31 January 2018, title of the talk: "Il mondo dei sistemi di raccomandazione: la matematica di Amazon, Facebook e Twitter".
- Seminar series for the "Comenius" project at the Liceo Scientifico "Rummo" of Benevento, on the following topics: "Zeri di polinomi con Sage e Python: metodi numerici e loro convergenza", "La matematica del web: autovalori e sistemi lineari per ricercare con Google", "Disegnare con le matrici: cosa si nasconde dietro il clic del mouse", A.Y. 2014–2015.
- Orientation meetings within the project "Numero Ergo Sum" of the Department of Mathematics, University of Salerno, at the Liceo Scientifico "Da Procida" of Salerno, A.Y. 2015–2016.
- Member of the organizing committee of the conference "Matematica e Statistica - PLS (Per Lasciare il Segno)", University of Salerno, 4 April 2012, within the "Piano Lauree Scientifiche - Progetto Matematica e Statistica".
- Member of the organizing committe of the Piano Lauree Scientifiche - Progetto "Matematica e Statistica" for A.Y. 2011–2012, Department of Mathematics, University of Salerno.
- Orientation meeting within the event "Collega-Menti", University of Salerno, October 2008.
- Orientation meeting within the project "Campus", University of Salerno, A.Y. 2007–2008.
- Orientation meeting within the project "Agasmi - Avvicinare i giovani alle Scienze Matematiche e Informatiche", University of Salerno, A.Y. 2007–2008.
- Orientation meeting within the project "Exposcuola 2007", University of Salerno, October 2008.

L'Aquila, October 29, 2024