

Curriculum vitae et studiorum of
Prof. Raffaele D'Ambrosio

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1 Current academic position

Associate Professor of Numerical Analysis at the Department of Engineering and Computer Science and Mathematics of the University of L'Aquila (from September 1, 2017).

2 Previous academic positions

1. Habilitation as Associate Professor, sector 01/A5 - Numerical Analysis (from December 19, 2013).
2. 15 April 2015–31 August 2017: Researcher (sector 01/A5 - Numerical Analysis; scientific sector MAT/08 - Numerical Analysis) at the Department of Mathematics of the University of Salerno, ex L. 240/2010, art. 24, comma 3, letter A.
3. 1 November 2014–30 March 2015: Fulbright Research Scholar at the Georgia Institute of Technology di Atlanta (Georgia, USA). Title of the project: “Discontinuous dynamical systems: an accurate and efficient framework for their numerical solution”. Faculty Associate: prof. Luca Dieci (School of Mathematics, Georgia Institute of Technology).
4. 2 April 2012–1 April 2015: post-doc position ex L. 240/2010, art. 22 (sector MAT/08 - Analisi Numerica), at the Department of Mathematics, University of Salerno (call Rep. 2085, Prot. 31903 of the University of Salerno);
5. 1 July 2010–30 June 2011: post-doc position ex L. 398/1989, art. 4, at the Department of Mathematics, University of Salerno (call Rep. 1290, Prot. 19550 of the University of Salerno);
6. A.Y. 2009/2010: tutor activity at the University of Naples “Federico II”, for teaching activities at the course “Calcolo Numerico”, Degree in Computer Science;
7. A.Y. 2008/2009: tutor activity at the University of Salerno (call prot. 0000125, 30/01/2009, of the Faculty of Science, University of Salerno), for teaching activities at the course “Laboratorio di Programmazione e Calcolo”, Degree in Mathematics;
8. 1 March 2008–31 October 2009: grant holder for bi-nationally supervised Ph.D. program (call Rep. 2036, Prot. 48262 of the University of Salerno);
9. 1 November 2006–31 October 2009: Ph.D. student in Mathematics (VIII cycle-new series) bi-nationally supervised by the University of Salerno, under the scientific supervision of prof. Beatrice Paternoster (University of Salerno) and Arizona State University, under the scientific supervision of prof. Zdzislaw Jackiewicz.

3 Studies

1. Ph.D. in Mathematics achieved on March 19, 2010, at the University of Salerno, bi-nationally supervised by Arizona State University. Title of the thesis: “Highly stable multistage numerical methods for Functional Equations: Theory and Implementation Issues”. Supervisors: prof. Beatrice Paternoster (University of Salerno) and prof. Zdzislaw Jackiewicz (Arizona State University).
2. Master Degree in Mathematics achieved on September 19, 2006, at the University of Salerno, cum laude. Title of the thesis: “Metodi a due passi di collocazione per equazioni differenziali ordinarie di tipo speciale”. Supervisor: prof. Beatrice Paternoster.
3. Degree in Mathematics achieved on November 17, 2004, at the University of Salerno, cum laude. Title of the thesis: “Metodi numerici per equazioni iperboliche”. Supervisor: Dr. Giovanni Capobianco.
4. High school diploma achieved on 2001 at the Liceo Scientifico Statale “E. Medi” of Battipaglia, with score 100/100.

4 Research interests

1. Structure-preserving numerical integration of evolutionary problems.
2. Long-term numerical integration of Hamiltonian problems.
3. Linear and nonlinear stability issues of numerical methods for stochastic differential equations and stochastic Volterra integral equations.
4. Adapted numerical schemes for oscillatory problems based on ordinary and partial differential equations.
5. Numerical treatment of discontinuous dynamical systems: piecewise smooth dynamical systems with a co-dimension 2 discontinuity manifold; reaction diffusion problems with discontinuous forcing terms.
6. Numerical integration of Volterra integral equations.
7. Numerical schemes for stiff problems, free from order reduction.

5 Publications

5.1 Papers on peer-reviewed journal

1. John Butcher, Raffaele D’Ambrosio, Partitioned general linear methods for separable Hamiltonian problems, APPLIED NUMERICAL MATHEMATICS 117, 69–86 (2017).

2. Kevin Burrage, Angelamaria Cardone, Raffaele D'Ambrosio, Beatrice Paternoster, Numerical solution of time fractional diffusion systems, *APPLIED NUMERICAL MATHEMATICS* 116, Pages 82–94 (2017).
3. Angelamaria Cardone, Raffaele D'Ambrosio, Beatrice Paternoster, Exponentially fitted IMEX methods for advection-diffusion problems, *JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS* 316, 100–108 (2017).
4. Angelamaria Cardone, Raffaele D'Ambrosio, Beatrice Paternoster, High order exponentially fitted methods for Volterra integral equations with periodic solution, *APPLIED NUMERICAL MATHEMATICS* 114C,18–29 (2017).
5. Raffaele D'Ambrosio, Martina Moccaldi, Beatrice Paternoster, Adapted numerical methods for advection-reaction-diffusion problems generating periodic wavefronts, *COMPUTERS AND MATHEMATICS WITH APPLICATIONS* 74(5), 1029–1042 (2017).
6. Raffaele D'Ambrosio, Beatrice 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).
7. Raffaele D'Ambrosio, Beatrice Paternoster, Carmen 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).
8. Angelamaria Cardone, Dajana Conte, Raffaele D'Ambrosio, Beatrice Paternoster, Modified collocation techniques for evolutionary problems, *INTERNATIONAL JOURNAL OF MATHEMATICAL MODELS AND METHODS IN APPLIED SCIENCES* 10, 266-273 (2016).
9. Raffaele D'Ambrosio, Giuseppe De Martino, Beatrice Paternoster. General Nyström methods in Nordsieck form: error analysis, *JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS* 292, 694-702 (2016).
10. Dajana Conte, Raffaele D'Ambrosio, Beatrice Paternoster, GPU acceleration of waveform relaxation methods for large differential systems, *NUMERICAL ALGORITHMS*, 71(2), 293–310 (2016).
11. Angelamaria Cardone, Dajana Conte, Raffaele D'Ambrosio, Beatrice Paternoster, Adapted numerical methods for oscillatory evolutionary problems, *INTERNATIONAL JOURNAL OF MECHANICS* 10, 266–273 (2016).
12. Raffaele D'Ambrosio, Beatrice Paternoster, A general framework for numerical methods solving second order differential problems. *MATHEMATICS AND COMPUTERS IN SIMULATION* 110(1), 113-124 (2015).

13. Raffaele D'Ambrosio, Giuseppe De Martino, Beatrice Paternoster, A symmetric nearly preserving general linear method for Hamiltonian problems, *DYNAMICAL SYSTEMS AND DIFFERENTIAL EQUATIONS*, 330-339 (2015).
14. Raffaele D'Ambrosio, Ernst Hairer, Long-term stability of multi-value methods for ordinary differential equations, *JOURNAL OF SCIENTIFIC COMPUTING* 60(3), 627-640 (2014).
15. Raffaele D'Ambrosio, Giuseppe De Martino, Beatrice Paternoster, Numerical integration of Hamiltonian problems by G-symplectic methods, *ADVANCES IN COMPUTATIONAL MATHEMATICS* 40(2), 553-575 (2014).
16. Raffaele D'Ambrosio, Beatrice Paternoster, Exponentially fitted singly diagonally implicit Runge-Kutta methods, *JOURNAL ON COMPUTATIONAL AND APPLIED MATHEMATICS* 263, 277-287 (2014).
17. Raffaele D'Ambrosio, Giuseppe De Martino, Beatrice Paternoster, Order conditions of general Nyström methods, *NUMERICAL ALGORITHMS*, 65(3) 579-595 (2014).
18. Raffaele D'Ambrosio, Beatrice Paternoster, Giuseppe Santomauro, Revised exponentially fitted Runge-Kutta-Nyström methods, *APPLIED MATHEMATICS LETTERS* 30, 56-60 (2014).
19. Raffaele D'Ambrosio, Beatrice Paternoster, P-stable general Nyström methods for $y'' = f(x, y)$, *JOURNAL ON COMPUTATIONAL AND APPLIED MATHEMATICS* 262, 271-280 (2014).
20. Dajana Conte, Raffaele D'Ambrosio, Giuseppe Izzo, Zdzislaw Jackiewicz, Natural Volterra Runge-Kutta methods, *NUMERICAL ALGORITHMS* 65(3), 421-445 (2014).
21. Raffaele D'Ambrosio, Beatrice Paternoster, Numerical solution of a diffusion problem by exponentially fitted finite difference methods, *SPRINGER PLUS* 3(1), 425-431 (2014).
22. Raffaele D'Ambrosio, Ernst Hairer, Christophe Zbinden, G-symplecticity implies conjugate-symplecticity of the underlying one-step method, *BIT NUMERICAL MATHEMATICS* 53, 867-872 (2013).
23. Dajana Conte, Raffaele D'Ambrosio, Zdzislaw Jackiewicz, Beatrice Paternoster, Numerical search for algebraically stable two-step continuous Runge-Kutta methods. *JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS* 239, 304-321 (2013).
24. Michal Bras, Angelamaria Cardone, Raffaele D'Ambrosio, Implementation of explicit Nordsieck methods with inherent quadratic stability. *MATHEMATICAL MODELLING AND ANALYSIS* 18(2), 289-307 (2013).

25. Raffaele D'Ambrosio, Giuseppe De Martino, Beatrice Paternoster, Construction of nearly conservative multivalued numerical methods for Hamiltonian problems, COMMUNICATIONS IN APPLIED AND INDUSTRIAL MATHEMATICS 3(2), e-412, doi:10.1685/journal.caim.412 (2012).
26. Raffaele D'Ambrosio, Elena Esposito, Beatrice Paternoster, Parameter estimation in two-step hybrid methods for second order ordinary differential equations, JOURNAL OF MATHEMATICAL CHEMISTRY 50(1), 155-168 (2012).
27. Dajana Conte, Raffaele D'Ambrosio, Zdzislaw Jackiewicz, Beatrice Paternoster, A practical approach for the derivation of algebraically stable two-step Runge-Kutta methods, MATHEMATICAL MODELLING AND ANALYSIS 17(1), 65-77 (2012).
28. Raffaele D'Ambrosio, Giuseppe Izzo, Zdzislaw Jackiewicz, Search for highly stable two-step Runge-Kutta methods for ODEs, APPLIED NUMERICAL MATHEMATICS 62(10), 1361-1379 (2012).
29. Dajana Conte, Raffaele D'Ambrosio, Beatrice Paternoster, Two-step diagonally-implicit collocation-based methods for Volterra Integral Equations, APPLIED NUMERICAL MATHEMATICS 62(10), 1312-1324 (2012).
30. Raffaele D'Ambrosio, Beatrice Paternoster, Two-step modified collocation methods with structured coefficients matrix for Ordinary Differential Equations, APPLIED NUMERICAL MATHEMATICS 62(10), 1325-1334 (2012).
31. Raffaele D'Ambrosio, Elena Esposito, Beatrice Paternoster, Exponentially fitted two-step Runge-Kutta methods: Construction and parameter selection, APPLIED MATHEMATICS AND COMPUTATION 218(14), 7468-7480 (2012).
32. Raffaele D'Ambrosio, Elena Esposito, Beatrice Paternoster, General linear methods for $y'' = f(y(t))$, NUMERICAL ALGORITHMS 61(2), 331-349 (2012).
33. Raffaele 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).
34. Raffaele D'Ambrosio, Giuseppe Izzo, Zdzislaw Jackiewicz, Perturbed MEBDF methods, COMPUTERS & MATHEMATICS WITH APPLICATIONS 63(4), 851-861 (2012).
35. Raffaele D'Ambrosio, Metodi numerici altamente stabili per equazioni funzionali, LA MATEMATICA NELLA SOCIETÀ E NELLA CULTURA, Serie I, Vol. IV, p. 43-46 (2011).
36. Raffaele D'Ambrosio, Liviu Gr. Ixaru, Beatrice Paternoster, Construction of the EF-based Runge-Kutta methods revisited, COMPUTER PHYSICS COMMUNICATIONS 182, 322-329 (2011).

37. Raffaele D'Ambrosio, Elena Esposito, Beatrice Paternoster, Exponentially fitted two-step hybrid for $y'' = f(x, y)$, JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS 235, 4888-4897 (2011).
38. Raffaele D'Ambrosio, Zdzislaw 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).
39. Raffaele D'Ambrosio, Maria Ferro, Beatrice Paternoster, Trigonometrically fitted two-step hybrid methods for special second order ordinary differential equations, MATHEMATICS AND COMPUTERS IN SIMULATION 81, 1068-1084 (2011).
40. Dajana Conte, Raffaele D'Ambrosio, Beatrice Paternoster, Construction of diagonally implicit almost collocation methods for Volterra Integral Equations, RIVISTA DI MATEMATICA DELLA UNIVERSIT DI PARMA 2, 125-146 (2011).
41. Dajana Conte, Raffaele D'Ambrosio, Zdzislaw Jackiewicz, Two-step Runge-Kutta methods with quadratic stability functions, JOURNAL OF SCIENTIFIC COMPUTING 2, 191-218 (2010).
42. Raffaele D'Ambrosio, Maria Ferro, Zdzislaw Jackiewicz, Beatrice Paternoster, Two step almost collocations methods for Ordinary Differential Equations, NUMERICAL ALGORITHMS 53(2-3), 195-217 (2010).
43. Raffaele D'Ambrosio, Zdzislaw Jackiewicz, Continuous Two-Step Runge-Kutta Methods for Ordinary Differential Equations, NUMERICAL ALGORITHMS 54(2), p. 169-193 (2010).
44. Raffaele D'Ambrosio, Maria Ferro, Beatrice Paternoster, Two-Step Hybrid Collocation Methods for $y'' = f(x, y)$, APPLIED MATHEMATICS LETTERS 22(7), 1076-1080 (2009).

5.2 Papers on conference proceedings or peer-reviewed volumes

1. Raffaele D'Ambrosio, Martina Moccaldi, Federico Rossi, Beatrice Paternoster (2017). 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).
2. Angelamaria Cardone, Dajana Conte, Raffaele D'Ambrosio, Beatrice Paternoster (2017). 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.

3. Raffaele D'Ambrosio (2016). 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.
4. Raffaele D'Ambrosio, Martina Moccaldi, Beatrice Paternoster (2015). Highly stable multivalued numerical methods. In: NUMERICAL ANALYSIS AND APPLIED MATHEMATICS, ed. by T. E. Simos, G. Psihoyios, Ch. Tsitouras, AIP Conference Proceedings 1648, 150005.
5. Raffaele D'Ambrosio, Multi-valued 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).
6. Raffaele D'Ambrosio, Beatrice Paternoster (2012). 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.
7. Dajana Conte, Raffaele D'Ambrosio, Beatrice Paternoster (2010). 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, ISBN: 9789048199808.
8. Dajana Conte, Raffaele D'Ambrosio, Maria Ferro, Beatrice Paternoster (2010). 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, ISBN: 9788849828542.
9. Raffaele D'Ambrosio, Giuseppe Izzo, Zdzislaw Jackiewicz (2009). 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.
10. Dajana Conte, Raffaele D'Ambrosio, Maria Ferro, Beatrice Paternoster (2009). 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.
11. Raffaele D'Ambrosio, Beatrice Paternoster (2009). 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.
12. Dajana Conte, Raffaele D’Ambrosio, Maria Ferro, Beatrice Paternoster (2009). 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.
 13. Raffaele D’Ambrosio, Maria Ferro, Beatrice Paternoster (2008). 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.
 14. Raffaele D’Ambrosio, Maria Ferro, Beatrice Paternoster (2007). 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.

5.3 Submitted manuscripts

1. Evelyn Buckwar, Raffaele D’Ambrosio, Exponential mean-square stability properties of stochastic linear multistep methods.
2. Raffaele D’Ambrosio, Martina Moccaldi, Beatrice Paternoster, Numerical preservation of invariance laws by stochastic linear multistep methods.
3. Raffaele D’Ambrosio, Beatrice Paternoster, Multi-value collocation methods free from order reduction.
4. Dajana Conte, Raffaele D’Ambrosio, Beatrice Paternoster, Stability issues of stochastic theta-methods for stochastic Volterra integral equations.
5. Raffaele D’Ambrosio, Martina Moccaldi, Beatrice Paternoster, Parameter estimation in adapted methods for reaction-diffusion problems generating periodic wavefronts.
6. Dajana Conte, Raffaele D’Ambrosio, Martina Moccaldi, Beatrice Paternoster, Adapted peer methods for differential problems.

5.4 Manuscripts in preparation

1. Raffaele D’Ambrosio, Luca Dieci, Fabio Difonzo, IVP approach to piecewise discontinuous dynamical systems.
2. Raffaele D’Ambrosio, Beatrice Paternoster, Andrea Ventola, Perturbative analysis of stochastic linear multistep methods solving stochastic Hamiltonian problems.

3. Raffaele D'Ambrosio, Zdzislaw Jackiewicz, Beatrice Paternoster, Positivity preserving two-step Runge-Kutta methods.

6 Scientific talks

6.1 Invited conference talks

1. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Invariant preserving numerical approximation of stochastic differential equations. RO-LCG 2017 Grid, Cloud and High-Performance Computing in Science, Symposium "Numerical analysis and applications" organized by Liviu Gr. Ixaru, Sinaia, 26–28 Ottobre 2017.
2. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Adapted numerical methods for partial differential equations generating periodic wavefronts, RO-LCG 2017 Grid, Cloud and High-Performance Computing in Science, Symposium "Numerical analysis and applications" organized by Liviu Gr. Ixaru, Sinaia, 26–28 Ottobre 2017.
3. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Adapted finite difference schemes for advection-reaction-diffusion problems generating periodic wavefronts. SCICADE 2017 - Symposium MS-20 "Numerical treatment of oscillatory problems" organized by R. D'Ambrosio, J. Montijano and Luis Randez, Bath, 11–15 September 2017.
4. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Preserving structures of stochastic differential equations along numerical solutions . SCICADE 2017 - Symposium MS-20 "Numerical treatment of oscillatory problems" organized by R. D'Ambrosio, J. Montijano and Luis Randez, Bath, 11–15 September 2017.
5. R. D'Ambrosio, L. Dieci, F. Difonzo, 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, 11–15 September 2017.
6. R. D'Ambrosio, 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), 30 January–3 February 2017.
7. R. D'Ambrosio, 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, Rhodes (Greece), 19–25 September 2016.
8. A. Agosti, R. D'Ambrosio, L. Formaggia, B. Giovanardi, A. Scotti, 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” organized by L. Lopez and S. Maset, Milan, 13–16 September 2016.
9. R. D’Ambrosio, M. Moccaldi, B. Paternoster, On the employ of time series in the numerical treatment of differential equations. XIII SIMAI Conference, Symposium MS-12 “Numerical Methods and Algorithms for Data Analysis in Science and Engineering Applications” organized by S. Cuomo, A. Galletti and L. Marcellino, Milan, 13–16 September 2016.
 10. R. D’Ambrosio, Structure-preserving numerical integration of evolutionary problems. Plenary talk at the workshop SDIDE2016 - Stability and Discretization Issues in Differential Equations, Trieste, 21–24 June 2016.
 11. R. D’Ambrosio, Recent advances in numerical modeling for differential problems. Plenary talk at the workshop Soft Computing Days, Fisciano, 23–25 May 2016.
 12. R. D’Ambrosio, Some recent advances in the numerical solution of functional equations. Plenary talk at the workshop NUMEP2015 - Numerical Modeling in Evolutionary Problems: perspectives and applications, Fisciano, 26–27 October 2015.
 13. R. D’Ambrosio, B. Paternoster, C. Scalone, Numerical solution of differential equations, modeling the evolution of some T-cells. Invited poster at the workshop NUMEP2015 - Numerical Modeling in Evolutionary Problems: perspectives and applications, Fisciano, 26–27 October 2015.
 14. R. D’Ambrosio, M. Moccaldi, B. Paternoster, Implicit - explicit (IMEX) methods for reaction-diffusion systems with non-polynomial fitting. Invited poster at the workshop NUMEP2015 - Numerical Modeling in Evolutionary Problems: perspectives and applications, Fisciano, 26–27 October 2015.
 15. E. Buckwar, R. D’Ambrosio, Exponential mean-square stability of numerical methods for nonlinear stochastic differential equations. Invited poster at the workshop NUMEP2015 - Numerical Modeling in Evolutionary Problems: perspectives and applications, Fisciano, 26–27 October 2015.
 16. K. Burrage, A. Cardone, R. D’Ambrosio, B. Paternoster, A mixed spectral method for time-fractional reaction-diffusion systems. Invited poster at the workshop NUMEP2015 - Numerical Modeling in Evolutionary Problems: perspectives and applications, Fisciano, 26–27 October 2015.
 17. R. D’Ambrosio, Some recent advances in the numerical solution of differential equations. Plenary talk at ICNAAM 2015 - 13th International Conference of Numerical Analysis and Applied Mathematics, Rhodes (Greece), 22–28 September 2015.
 18. R. D’Ambrosio, B. Paternoster, Numerical treatment of reaction-diffusion problems by trigonometrically fitted methods. SCICADE 2015, Symposium MS01 “Time integration of partial differential equations” organized by A. Ostermann and M. Hochbruck, Potsdam (Germany), 14–18 September 2015.

19. R. D'Ambrosio, Luca Dieci, Fabio Difonzo, 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), 14–18 September 2015.
20. R. D'Ambrosio, Luca Dieci, Fabio Difonzo, 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, 7–12 September 2015.
21. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Metodi numerici impliciti-espliciti adattati per problemi di reazione-diffusione semidiscretizzati. XX UMI Conference, Symposium S10 "Metodi numerici per le equazioni differenziali ordinarie" organized by A. Bellen, Siena, 7–12 September 2015.
22. D. Conte, R. D'Ambrosio, B. Paternoster, Risoluzione numerica di sistemi di equazioni differenziali di grandi dimensioni su GPUs. XX UMI Conference, Symposium S10 "Metodi numerici per le equazioni differenziali ordinarie" organized by A. Bellen, Siena, 7–12 September 2015.
23. R. D'Ambrosio, Structure-preserving numerical methods for evolutionary problems. Plenary talk at the Second Tbilisi-Salerno conference on Modeling in Mathematics, Tbilisi (Georgia), 15–18 March 2015.
24. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Highly stable multivalued 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), 22–28 September 2014.
25. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Long-term stability of multivalued 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), 22–28 September 2014.
26. R. D'Ambrosio, B. Paternoster, 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 (Greece), 19–25 September 2012.
27. R. D'Ambrosio, B. Paternoster, 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 e E. Weinmuller, Kos (Greece), 19–25 September 2012.

28. R. D’Ambrosio, Numerical modeling of some evolutionary problems in Immunology, Plenary talk at the First Salerno-Tbilisi conference on Modeling in Mathematics, University of Salerno, 25-27 February 2014.
29. M. Bras, R. D’Ambrosio, G. Izzo, Z. Jackiewicz, Highly stable General Linear Methods for ordinary differential equations, Plenary talk at the 15th International Conference Mathematical Modelling and Analysis, Druskininkai (Lithuania), 26 - 29 May 2010.
30. R. D’Ambrosio, G. Izzo, Z. Jackiewicz, Search for Highly Stable General Linear Methods for Ordinary Differential Equations, Plenary talk at the 12th Seminar NUMDIFF on Numerical Solution of Differential and Differential-Algebraic Equations, Halle (Germany), 14 - 18 September 2009.
31. R. D’Ambrosio, G. Izzo, Z. Jackiewicz, Highly Stable General Linear Methods for Differential Systems, Plenary talk at ICNAAM 2009 - 7th International Conference of Numerical Analysis and Applied Mathematics, Rethymno (Crete), 18 - 22 September 2009.
32. R. D’Ambrosio, M. Ferro, Z. Jackiewicz, B. Paternoster, Almost two-step collocation methods for ordinary differential equations, Plenary talk at GLADE Conference 2008, Auckland (New Zealand), 14-18 July 2008.

6.2 Invited seminars

1. Preserving structures of stochastic differential equations along numerical solutions, School of Mathematical and Statistical Sciences, Arizona State University, invited by Z. Jackiewicz, 11 May 2017.
2. Structure-preserving numerical integration of evolutionary problems, Dipartimento di Matematica, Politecnico of Milan (Italy), invited by L. Formaggia, 17 December 2015.
3. Nonlinear stability issues for the numerical solution of evolutionary problems, School of Mathematics, Georgia Institute of Technology, Atlanta (USA), invited by L. Dieci, 26 January 2015.
4. Structure-preserving numerical integration of ordinary and partial differential equations, School of Mathematics, Georgia Institute of Technology, Atlanta (USA), invited by L. Dieci, 1 December 2014.
5. Invited seminars within the “Comenius” project at the Liceo Scientifico “Rummo” of Benevento, on the following themes: “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.

6. Making Maths Interactive with Mathematics Software Sage, Liceo Scientifico “Rummo” of Benevento, within the “Comenius” project involving the “Hatice Bayraktar” Anatolian Technical and Vocational School of Kocaeli (Turkey) and the “XIV Liceum Ogólnokształcące Stanisława Staszica” of Warsaw (Poland), June 2014.
7. Structure preserving numerical methods for differential equations, Maxwell Institute Graduate School on Evolution Equations, Edinburgh (UK), 8 October 2014.
8. Nearly conservative general linear methods for Hamiltonian problems, Section de Mathématiques, Université de Genève, invited by E. Haier, 9 April 2013.
9. Partitioned general linear methods for separable Hamiltonian problems, Department of Mathematics, University of Auckland, invited by J. Butcher, 25 January 2013.
10. Nonlinear stability and G-symplecticity of General Linear Methods, CIME Course “Current challenges in stability issues for numerical differential equations”, Cetraro (Italy), invited by L. Dieci e N. Guglielmi, 1 July 2011.
11. Proprietà conservative dei Metodi Generali Lineari, Department of Mathematics and Applications, University of Naples “Federico II”, invited by E. Russo, 14 February 2011.
12. Time-reversal symmetry of partitioned General Linear Methods, Department of Mathematics, University of Auckland, invited by J. Butcher, 9 November 2010.
13. G-symplectic General Linear Methods for separable Hamiltonian problems, Department of Mathematics, University of Auckland, invited by J. Butcher, 2 November 2010.
14. Continuous two-step Runge-Kutta methods for Ordinary Differential Equations, Department of Mathematics, Arizona State University, Tempe (USA), invited by Z. Jackiewicz, 4 November 2008.

6.3 Contributed conference and workshop talks

1. R. D’Ambrosio, M. Moccaldi, B. Paternoster, F. Rossi, Stochastic numerical modeling of selected oscillatory phenomena. WIVACE 2017 - XII Workshop on Artificial Life and Evolutionary Computation, Venice, 19-21 September 2017.
2. E. Buckwar, R. D’Ambrosio, M. Moccaldi, B. Paternoster, Stability issues for stochastic multistep methods, 9th NAI Workshop - Numerical Analysis of Evolution Equations, Innsbruck (Austria), 8-11 November 2016.

3. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Adapted numerical integration of advection-reaction-diffusion problems generating periodic wavefronts, 9th NAI Workshop - Numerical Analysis of Evolution Equations, Innsbruck (Austria), 8-11 November 2016.
4. R. D'Ambrosio, B. Paternoster, C. Scalone, Numerical modeling of T-cell dynamics, AMCSE 2016 - International Conference Applied Mathematics, Computational Science and Systems Engineering, Roma, 5-7 November 2016.
5. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, Modified Collocation Techniques for Evolutionary Problems, AMCSE 2016 - International Conference Applied Mathematics, Computational Science and Systems Engineering, Roma, 5-7 November 2016.
6. R. D'Ambrosio, M. Moccaldi, B. Paternoster, F. Rossi, On the employ of time series in the numerical treatment of differential equations modelling oscillatory phenomena, WIVACE 2016 - Workshop on Artificial Life and Evolutionary Computation, Fisciano (Salerno), 4-7 October 2016.
7. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Adapted numerical methods for advection-reaction-diffusion problems generating periodic wavefronts, SDS2016 Workshop on structural dynamical systems: Computational Aspects, Capitolo - Monopoli (Bari), 14-17 June 2016.
8. R. D'Ambrosio, Stability issues in the numerical solution of stochastic differential equations, SDS2016 Workshop on structural dynamical systems: Computational Aspects, Capitolo - Monopoli (Bari), 14-17 June 2016.
9. D. Conte, R. D'Ambrosio, E. Di Rubbo, B. Paternoster, On the stability of Euler-Maruyama and Milstein type methods for stochastic Volterra integral equations, SDS2016 Workshop on structural dynamical systems: Computational Aspects, Capitolo - Monopoli (Bari), 14-17 June 2016.
10. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, Adapted numerical methods for oscillatory evolutionary problems, AMCME 2016 International Conference on Applied Mathematics and Computational Methods in Engineering, Riga (Lettonia), 28- 30 May 2016.
11. A. Cardone, R. D'Ambrosio, B. Paternoster, High order exponentially fitted methods for periodic Volterra Integral Equations, IWANASP 2015 - Fifth International Workshop on Analysis and Numerical Approximation of Singular Problems, Lagos (Portogallo), 22-24 October 2015.
12. K. Burrage, A. Cardone, R. D'Ambrosio, B. Paternoster, Numerical solution of time-fractional reaction-diffusion systems, SCICADE 2015 - International Conference on Scientific Computation And Differential Equations, Potsdam (Germany), 14-18 September 2015.

13. A. Cardone, R. D'Ambrosio, B. Paternoster, Trigonometrically fitted numerical methods for reaction-diffusion problems, NUMDIFF14 - Numerical Solution of Differential and Differential-Algebraic Equations, Halle (Germany), 7-11 September 2015.
14. R. D'Ambrosio, Structure-preserving numerical methods for differential problems, NETNA2015 - New Trends in Numerical Analysis, Falerna (Italy), 18-21 June 2015.
15. R. D'Ambrosio, M. Moccaldi, B. Paternoster, Numerical solution of partial differential equations by IMEX methods based on non-polynomial fitting, NETNA2015 - New Trends in Numerical Analysis, Falerna (Italy), 18-21 15 June 2015.
16. R. D'Ambrosio, Nearly preserving numerical methods for differential equations, 8th Workshop SDS2012 STRUCTURAL DYNAMICAL SYSTEM: Computational Aspects, Capitolo, Monopoli (Italy), 12-15 June 2014.
17. R. D'Ambrosio, Long-term structure-preserving numerical methods for Hamiltonian problems in Physics and Medicine, SIMAI Biannual Congress, Taormina (Italy), 7-10 July 2014.
18. R. D'Ambrosio, G. De Martino, B. Paternoster, Nearly conservative multi-value numerical methods for Hamiltonian problems, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid (Spagna), 7-11 July 2014.
19. J. C. Butcher, R. D'Ambrosio, B. Paternoster, Multivalued numerical methods for partitioned differential problems: from second order ODEs to separable Hamiltonians, ANODE13 Auckland Numerical Ordinary Differential Equations in celebration of the 80th birthday of John C. Butcher, Auckland (New Zealand), 7-11 January 2013.
20. D. Conte, R. D'Ambrosio, G. Izzo, Z. Jackiewicz, Construction of highly stable Volterra Runge-Kutta methods, ANODE13 Auckland Numerical Ordinary Differential Equations in celebration of the 80th birthday of John C. Butcher, Auckland (New Zealand), 7-11 January 2013.
21. R. D'Ambrosio, Numerical solution of Hamiltonian systems by multivalued methods, ENUMATH 2013 European Numerical Mathematics and Advanced Applications, Lausanne (Svizzera), 26-30 August 2013.
22. R. D'Ambrosio, G. De Martino, B. Paternoster, Numerical solution of Hamiltonian problems by G-symplectic integrators, SCICADE 2013 International Conference on Scientific Computation and Differential Equations, Valladolid (Spagna), 16-20 September 2013.

23. R. D'Ambrosio, E. Hairer, Long-term stability of multi-value methods for ordinary differential equations, SCICADE 2013 International Conference on Scientific Computation and Differential Equations, Valladolid (Spagna), 16–20 September 2013.
24. J. C. Butcher, R. D'Ambrosio, Nearly conservative multivalued methods for separable Hamiltonian problems, 7th Workshop SDS2012 STRUCTURAL DYNAMICAL SYSTEM: Computational Aspects, Capitolo, Monopoli (Bari), 12–15 June 2012.
25. D. Conte, R. D'Ambrosio, B. Paternoster, Z. Jackiewicz, Algebraically stable two-step Runge-Kutta and continuous methods for ordinary differential equations, 7th Workshop SDS2012 STRUCTURAL DYNAMICAL SYSTEM: Computational Aspects, Capitolo, Monopoli (Bari), 12–15 June 2012.
26. J. C. Butcher, R. D'Ambrosio, Canonical properties of general linear methods for Hamiltonian problems, SIMAI Biannual Congress, Torino, 25–28 June 2012.
27. R. D'Ambrosio, B. Paternoster, Exponentially fitted methods for second order ordinary differential equations with parameter estimation, SIMAI Biannual Congress, Torino, 25–28 June 2012.
28. R. D'Ambrosio, B. Paternoster, Exponentially fitted numerical methods for differential problems with equation dependent coefficients, ICCAM 2012 - International Congress on Computational and Applied Mathematics, Gent (Belgio), 9–13 July 2012.
29. R. D'Ambrosio, B. Paternoster, Highly stable General Linear Methods for second order Ordinary Differential Equations, 13th Seminar NUMDIFF on Numerical Solution of Differential and Differential-Algebraic Equations, Halle (Germany), 10–14 September 2012.
30. R. D'Ambrosio, Metodi numerici algebricamente stabili e G-simpletici per il trattamento di problemi di evoluzione, Giornata di Studio SIMAI “Prospettive di sviluppo della matematica applicata in Italy 2011”, Roma, 8 April June 2011.
31. D. Conte, R. D'Ambrosio, Z. Jackiewicz, B. Paternoster, Algebraically stable two-step Runge-Kutta methods for Ordinary Differential Equations, MMA2011 - 16th International Conference on Mathematical Modelling and Analysis, Sigulda (Lettonia), 25–28 May 2011.
32. R. D'Ambrosio, Metodi Generali Lineari altamente stabili e conservativi per la risoluzione numerica di Equazioni Differenziali Ordinarie, XIX UMI Conference, Bologna, 12–17 Settembre 2011.
33. R. D'Ambrosio, E. Esposito, B. Paternoster, Metodi Generali Lineari per Equazioni Differenziali Ordinarie del secondo ordine, XIX UMI Conference, Bologna, 12–17 September 2011.

34. R. D'Ambrosio, E. Esposito, B. Paternoster, General Linear Nyström methods, SC2011 International Conference on Scientific Computing, S. Margherita di Pula (Italia), 10-14 October 2011.
35. R. D'Ambrosio, E. Esposito, B. Paternoster, Stability analysis of General Linear Nyström methods, SC2011 International Conference on Scientific Computing, S. Margherita di Pula (Italia), 10–14 October 2011.
36. D. Conte, R. D'Ambrosio, Z. Jackiewicz, B. Paternoster, Algebraically stable two-step almost collocation methods for ordinary differential equations, BIT 50 - Trends in Numerical Computing, Lund, Sweden, 17–20 June 2010.
37. R. D'Ambrosio, E. Esposito, B. Paternoster, General Linear Methods for Special Second Order ODEs, BIT 50 - Trends in Numerical Computing, Lund (Svezia) 17–20 June 2010.
38. R. D'Ambrosio, Z. Jackiewicz, Highly stable two step collocation methods for stiff differential systems, 12th Seminar NUMDIFF on Numerical Solution of Differential and Differential-Algebraic Equations, Halle (Germany), 14–18 September 2009.
39. D. Conte, R. D'Ambrosio, B. Paternoster, Two-step diagonally-implicit collocation-based methods for Volterra Integral Equations, 12th Seminar NUMDIFF on Numerical Solution of Differential and Differential Algebraic Equations, Halle (Germany), 14–18 September 2009.
40. R. D'Ambrosio, B. Paternoster, Two-step modified collocation methods with structured coefficient matrices for ordinary differential equations, 12th Seminar NUMDIFF on Numerical Solution of Differential and Differential-Algebraic Equations, Halle (Germany), 14–18 September 2009.
41. R. D'Ambrosio, B. Paternoster, Runge-Kutta-Nyström stability for a class of General Linear Methods for $y'' = f(x, y)$, ICNAAM 2009 - 7th International Conference of Numerical Analysis and Applied Mathematics, Rethymno, Crete, 18–22 September 2009.
42. R. D'Ambrosio, E. Esposito, B. Paternoster, Exponentially fitted twostep hybrid methods for $y'' = f(x, y)$, ICCAM 2009 - 14th International Congress on Computational and Applied Mathematics, Antalya (Turchia), 29 September–2 October 2009.
43. A. Cardone, D. Conte, R. D'Ambrosio, B. Paternoster, Modified collocation-based numerical methods for Volterra Integral and Integro-differential Equations, Equazioni integrali: recenti sviluppi numerici e nuove applicazioni, Parma, 29–30 October 2009.
44. R. D'Ambrosio, M. Ferro, B. Paternoster, Two-step collocation methods for $y'' = f(x, y)$, NAOF 2008 - Symposium on Numerical Approaches of Oscillatory Functions, Gent (Belgio), 16–18 January 2008.

45. R. D'Ambrosio, Development and Implementation of Two-step Runge-Kutta Methods for Ordinary Differential Equations, SDS 2008 - STRUCTURAL DYNAMICAL SYSTEMS: Computational Aspects Workshop, Capitolo, Monopoli, 17–20 June 2008 (poster session).
46. R. D'Ambrosio, M. Ferro, B. Paternoster, New classes of two step collocation methods for special second order ODEs, SDS 2008 - STRUCTURAL DYNAMICAL SYSTEMS: Computational Aspects Workshop, Capitolo, Monopoli, 17–20 June 2008.
47. R. D'Ambrosio, M. Ferro, B. Paternoster, Collocation-based two step Runge-Kutta methods for Ordinary Differential Equations, ICCSA 2008 - International Conference on Computational Science and Its Applications, Perugia, 30 June–3 July 2008.
48. R. D'Ambrosio, Z. Jackiewicz, A Special Class of Continuous Two-Step Runge-Kutta Methods for Ordinary Differential Equations, GLADE Conference 2008, Auckland (Nuova Zelanda), 14–18 July 2008.
49. D. Conte, R. D'Ambrosio, Z. Jackiewicz, Two-Step Runge-Kutta Methods with Quadratic Stability Functions, GLADE Workshop 2008, Auckland (Nuova Zelanda), 21–25 July 2008.
50. D. Conte, R. D'Ambrosio, M. Ferro, B. Paternoster, Modified Collocation Techniques for Ordinary Differential Equations and Volterra Integral Equations, SIMAI 9th Congress, Rome, 15–19 September 2008.
51. D. Conte, R. D'Ambrosio, Z. Jackiewicz, Analysis and practical construction of Two-Step Runge-Kutta methods for Ordinary Differential Equations, SIMAI 9th Congress, Rome, 15–19 September 2008.
52. R. D'Ambrosio, M. Ferro, Z. Jackiewicz, B. Paternoster, A new class of two step continuous methods for Ordinary Differential Equations, SciCADE 2007 - 11th International Conference on SCIENTIFIC COMPUTATION AND DIFFERENTIAL EQUATIONS, Saint-Malo (France), 9–13 July 2007.
53. R. D'Ambrosio, M. Ferro, B. Paternoster, A General Family of Two Step Collocation Methods for Ordinary Differential Equations, ICNAAM 2007 - International Conference of Numerical Analysis and Applied Mathematics, Corfu (Greece), 16–20 September 2007.
54. R. D'Ambrosio, M. Ferro, B. Paternoster, Metodi generali di collocazione per Equazioni Differenziali Ordinarie, XVIII UMI Conference, 24–29 September 2007.

7 Prizes

1. Honorary Fellowship of the *European Society of Computational Methods in Science and Engineering*, from September 2015, held during ICNAAM 2015 Conference, Rhodes (Greece), where Prof. D'Ambrosio has been invited as plenary speaker.
2. Galileo Galilei 2011 Prize, awarded by Rotary International and Galileo Galilei Foundation in Pisa.
3. Finalist of the Cavalierato Giovanile 2011 for scientific research, district of Salerno.

8 Research visits in Italy and abroad

8.1 Long-term visits

1. March 2016: MOX Laboratory, Department of Mathematics, Politecnico of Milan, scientific collaboration with A. Scotti, A. Agosti and B. Giovanardi.
2. November 2014 – March 2015: Fulbright Research Scholar, School of Mathematics, Georgia Institute of Technology (Atlanta), scientific collaboration with L. Dieci and F. Dfonzo.
3. March – April 2014: Institut für Stochastik, Johannes Kepler Universität Linz, scientific collaboration with Evelyn Buckwar.
4. April – May 2013: Department of Mathematics, Université de Genève, scientific collaboration with Ernst Hairer.
5. January 2013: Department of Mathematics, University of Auckland, scientific collaboration with J.C. Butcher.
6. October– December 2010: Department of Mathematics, University of Auckland, scientific collaboration with J.C. Butcher.
7. March 2008 – March 2009: Department of Mathematics, Arizona State University, scientific collaboration with Z. Jackiewicz.

8.2 Short-term visits

1. May 2017: School of Mathematical and Statistical Sciences, Arizona State University, scientific collaboration with Z. Jackiewicz.
2. July 2016: MOX Laboratory, Department of Mathematics, Politecnico of Milan, scientific collaboration with A. Scotti, A. Agosti and B. Giovanardi.
3. February 2016: MOX Laboratory, Department of Mathematics, Politecnico of Milan, scientific collaboration with A. Scotti, A. Agosti and B. Giovanardi.

4. October 2014: Department of Applied Mathematics, University of Leeds, research meetings with G. Lythe and C. Molina-Paris.

9 Granted projects

9.1 Responsible

1. Fulbright Research Scholar 2014–2015, title of the project: “Discontinuous dynamical systems: an accurate and efficient framework for their numerical solution”. The activities of the project have been carried out at the School of Mathematics, Georgia Institute of Technology, Atlanta (USA).
2. GNCS-Indam 2014–2015 project, Young Researchers Program 2014, title of the project: “Metodi structure-preserving per problemi di evoluzione”.
3. GNCS-Indam 2013–2014 project, Young Researchers Program 2013, title of the project: “Integrazione long-term di sistemi Hamiltoniani e problemi oscillanti”.
4. GNCS-Indam 2012–2013 project, Young Researchers Program 2012.
5. GNCS-Indam 2010–2011 project, Young Researchers Program 2010.
6. GNCS-Indam 2009–2010 project, Young Researchers Program 2009.

9.2 Participant

1. FARB project - University of Salerno 2006: Metodi numerici efficienti per problemi differenziali e integrali.
2. FARB project - University of Salerno 2008: Metodi numerici e software matematico per problemi di evoluzione.
3. FARB project - University of Salerno 2010: Problemi di evoluzione: metodi numerici e algoritmi.
4. FARB project - University of Salerno 2012: Modellistica numerica per problemi differenziali e integrali.
5. FARB project - University of Salerno 2014: Trattamento numerico di problemi differenziali di evoluzione.
6. FARB project - University of Salerno 2016: Modellistica numerica per problemi differenziali e integrali di evoluzione.
7. GNCS 2017 project - Analisi e sviluppo di metodologie numeriche per certi tipi non classici di sistemi dinamici.

10 Editor activity

1. Specialist editor of Computer Physics Communications, Elsevier.
2. Associate Editor of Applied Numerical Mathematics, Elsevier.
3. Associate Editor of Opuscula Mathematica, AGH University of Science and Technology (Krakow, Poland).
4. Associate Editor of Research and Communications in Mathematics and Mathematical Sciences, Jyoti Academic Press.

11 Organization of conferences and workshops

1. Co-organizer of the Minisymposium “Numerical integration of evolutionary problems” within the international conference SciCADE 2017 - International Conference on Scientific Computation and Differential Equations, Bath, 11–15 September 2017, with Juan Ignacio Montijano (University of Zaragoza) and Luis Randez (University of Zaragoza).
2. 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 Higuera (University of Navarra) and Severiano Gonzalez-Pinto (University of La Laguna).
3. Co-organizer of the workshop NUMEP2015 - Numerical modeling of evolutionary problems: perspectives and applications, University of Salerno, 26-27 October 2015.
4. Co-organizer of the conference “Matematica e Statistica - PLS (Per Lasciare il Segno)”, University of Salerno, 4 April 2012, within the national project “Piano Lauree Scientifiche - Progetto Matematica e Statistica”.

12 Reviewer activity

Prof. D’Ambrosio is Reviewer for Mathematical Reviews and referee for the following journals:

1. SIAM Journal on Numerical Analysis (SIAM)
2. SIAM Journal on Scientific Computing (SIAM)
3. BIT Numerical Mathematics (Springer)
4. Numerical Algorithms (Springer)
5. Journal of Applied Mathematics and Computing (Springer)

6. Lecture Notes in Computer Science (Springer)
7. Applied Mathematics and Computation (Elsevier)
8. Applied Numerical Mathematics (Elsevier)
9. Journal of Computational and Applied Mathematics (Elsevier)
10. Computer Physics Communications (Elsevier)
11. Computers & Mathematics with Applications (Elsevier)
12. Applied Mathematics Letters (Elsevier)
13. Mathematics and Computers in Simulation (Elsevier)
14. Discrete and Continuous Dynamical System - B (Aims)
15. International Journal of Computer Mathematics (Taylor and Francis)
16. Mathematical Modeling and Analysis (Taylor and Francis)
17. Abstract and Applied Analysis (Hindawi)
18. Discrete Dynamics in Nature and Society (Hindawi)
19. Journal of Applied Mathematics (Hindawi)
20. Mathematical Problems in Engineering (Hindawi)
21. Journal of Computational Methods in Sciences and Engineering (Ios Press)
22. AIP Conference Proceedings (American Institute of Physics)
23. Applications and Applied Mathematics (Prairie View A&M University, Texas)
24. Electronic Journal of Differential Equations (Texas State University).

Prof. D'Ambrosio has been awarded "Outstanding Contribution in Reviewing" by the Editorial Board of the journal Applied Numerical Mathematics (Elsevier), August 2014.

13 Supervision of Ph.D. thesis

1. 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).
2. Co-advisor of the Ph.D. thesis of Martina Moccaldi, Ph.D. in Mathematics, Physics and Applications, University of Salerno - Second University of Naples, in preparation.

14 Other activities of academic service

1. Member of the Orientation Committee of the Degree in Mathematics, University of L'Aquila, from November 2017.
2. Referent for the Department of Mathematics, University of di Salerno, for the program of quality evaluation VQR 2011–2014.
3. Referent for the Department of Mathematics, University of di Salerno, for the catalogue of research products IRIS for the A.Y. 2016–2017.
4. Member of the E-Learning Committee, Degree in Computer Science, University of Salerno, for the years 2015–2017.
5. Teaching activity within the project “Numero Ergo Sum” of the Department of Mathematics, as counsellor for high school students, at the Liceo Scientifico “Da Procida” di Salerno, for the A.Y. 2015–2016.
6. Counsellor within the project “Collega-Menti” for the Degree in Mathematics, University of Salerno, October 2008.
7. Counsellor within the project “Campus”, University of Salerno, A.Y. 2007–2008.
8. Counsellor within the project “Agasmi - Avvicinare i giovani alle Scienze Matematiche e Informatiche”, University of Salerno, A.Y. 2007–2008.
9. Counsellor within the project “Exposcuola 2007”, University of Salerno, October 2008.

15 Teaching activity

15.1 Courses for first, second and single cycle degrees

1. “Calcolo Scientifico”, Degree in Computer Science, University of Salerno, for the whole course (6 CFU), A.Y. 2016–2017.
2. “Calcolo Numerico II”, Degree in Mathematics, University of Salerno, for 2 CFU, A.Y. 2016–2017.
3. “Analisi Numerica”, Degree in Computer Science, University of Salerno, for the whole course (6 CFU), A.Y. 2015–2016.
4. “Calcolo Numerico II”, Degree in Mathematics, University of Salerno, for 1 CFU, A.Y. 2015–2016.

15.2 Evaluation of the teaching activity from the students

- For “Calcolo Scientifico”, A.Y. 2016–2017: average evaluation of the quality of teaching 3.97/4; average evaluation of the whole course: 3.90/4;
- for “Calcolo Numerico II”, A.Y. 2016–2017: average evaluation of the quality of teaching 3.92/4 (L2 - Mathematics 05123), 4/4 (LM - Mathematics 05222); average evaluation of the whole course: 3.68/4 (L2 - Mathematics 05123), 3.70/4 (LM - Mathematics 05222);
- for “Analisi Numerica”, A.Y. 2015–2016: Mathematics 3.94/4; average evaluation of the whole course: 3.84/4;
- for “Calcolo Numerico II”, A.Y. 2015–2016: Mathematics 3.67/4 (L2 - Mathematics 05123), 3.94/4 (LM - Mathematics 05222); average evaluation of the whole course: 3.59/4 (L2 - Mathematics 05123), 3.88/4 (LM - Mathematics 05222).

15.3 Courses for Doctoral Schools

1. “Algebra Lineare Numerica a Applicazioni”, Ph.D. in Mathematics, Physics and Applications, University of Salerno, A.Y. 2016–2017.
2. “Metodi numerici di integrazione geometrica per problemi Hamiltoniani”, Ph.D. in Mathematics, Physics and Applications, University of Salerno - Second University of Naples, A.Y. 2015–2016.
3. “Integrazione numerica di Equazioni Differenziali Stocastiche”, Ph.D. in Mathematics, Physics and Applications, University of Salerno - Second University of Naples, A.Y. 2014–2015.
4. “Metodi numerici avanzati per problemi d’evoluzione”, Ph.D. in Mathematics, University of Salerno, A.Y. 2010–2011.

15.4 Participation in examination committees

Prof. D’Ambrosio has participated to examination committees for all courses of the sector MAT/08 of the Degree and Master Degree in Mathematics (Laboratorio di Programmazione e Calcolo, Calcolo Numerico I, Calcolo Numerico II, Analisi Numerica), Computer Science (Analisi Numerica) and Chemistry (Calcolo Numerico, Metodi Matematici per la Chimica) as “cultore della materia” for the A.Y. 2009/10, 2010/11, 2011/12, 2012/13, 2013/14, 2014/15. As regards A.Y. 2015/16 and 2016/17, Prof. D’Ambrosio has been inserted in the examination committees for all courses of the sector MAT/08 of the Degree and Master Degree in Mathematics (Laboratorio di Programmazione e Calcolo, Calcolo Numerico I, Calcolo Numerico II, Analisi Numerica), Computer Science (Analisi Numerica, Calcolo Scientifico, for both as president of the committee) and Chemistry (Metodi Matematici per la Chimica) since he has been hired as Researcher of the sector MAT/08 by the University of Salerno.

15.5 Support teaching activity

1. Support teaching activity for the course “Analisi Numerica”, Master Degree in Mathematics, University of Salerno, A.Y. 2016–2017.
2. Support teaching activity for the course “Calcolo Numerico”, Degree in Mathematics, University of Salerno, A.Y. 2014–2015.
3. Support teaching activity for the course “Calcolo Numerico II”, Degree in Mathematics, University of Salerno, A.Y. 2014–2015.
4. Support teaching activity for the course “Calcolo Numerico II”, Degree in Mathematics, University of Salerno, A.Y. 2013–2014.
5. Support teaching activity for the course “Calcolo Numerico”, Degree in Mathematics, University of Salerno, A.Y. 2012–2013.
6. Support teaching activity for the course “Calcolo Numerico II”, Degree in Mathematics, University of Salerno, A.Y. 2012–2013.
7. Support teaching activity for the course “Analisi Numerica”, Degree in Computer Science, University of Salerno, A.Y. 2012–2013.
8. Support teaching activity for the course “Metodi Matematici per la Chimica”, Degree in Chemistry, University of Salerno, A.Y. 2011–2012.
9. Support teaching activity for the course “Analisi Numerica”, Degree in Computer Science, University of Salerno, A.Y. 2011–2012.
10. Support teaching activity for the course “Analisi Numerica”, Master Degree in Mathematics, University of Salerno, A.Y. 2011–2012.
11. Support teaching activity for the course “Laboratorio di Programmazione e Calcolo”, Degree in Mathematics, University of Salerno, A.Y. 2010–2011.
12. Support teaching activity for the course “Calcolo Numerico”, Degree in Computer Science, Università di Napoli “Federico II”, A.Y. 2009–2010.
13. Support teaching activity for the course “Laboratorio di Programmazione e Calcolo”, Degree in Mathematics, University of Salerno, A.Y. 2009–2010.
14. Support teaching activity for the course “Laboratorio di Programmazione e Calcolo”, Degree in Mathematics, University of Salerno, A.Y. 2008–2009.
15. Support teaching activity for the course “Analisi Numerica”, Degree in Computer Science, University of Salerno, A.Y. 2009–2009.
16. Support teaching activity for the course “Calcolo Numerico”, Degree in Mathematics, University of Salerno, A.Y. 2007–2008.

17. Support teaching activity for the course “Calcolo Numerico”, Degree in Mathematics, University of Salerno, A.Y. 2006–2007.

15.6 Supervision of students of first and second cycle degrees

A.Y. 2016-17

1. Advisor of the thesis of Amedeo Aquino “Animazione e modellazione in ambiente Maya”, Degree in Computer Science, University of Salerno.
2. Co-advisor of the thesis of Serena Auletta, “IModellistica numerica per problemi differenziali stocastici”, Degree in Mathematics, University of Salerno.
3. Advisor of the thesis of Serena Buono, “Metodi numerici per l’analisi di sistemi di raccomandazione”, Degree in Mathematics, University of Salerno.
4. Advisor of the thesis of Rosina Capuano, “Funzioni spline e applicazioni”, Degree in Mathematics, University of Salerno.
5. Advisor of the thesis of Angela Cesarano, “Accelerazione mediante GPU di algoritmi numerici per l’analisi dell’inquinamento atmosferico”, Degree in Computer Science, University of Salerno.
6. Advisor of the thesis of Andrea De Maio, “Tecniche numeriche per il face recognition”, Degree in Computer Science, University of Salerno.
7. Advisor of the thesis of Federica De Vito, “Tecniche di algebra lineare numerica per problemi di elevata dimensione”, Degree in Mathematics, University of Salerno.
8. Advisor of the thesis of Rosina Ferrante, “Approssimazione numerica di problemi ai limiti”, Degree in Mathematics, University of Salerno.
9. Co-advisor of the thesis of Rosa Galeotafore, “Alberi di Butcher e condizioni d’ordine per un metodo Runge-Kutta”, Degree in Mathematics, University of Salerno.
10. Co-advisor of the thesis of Carmela Moschella, “Dinamica a lungo termine di metodi lineari multistep per problemi conservativi”, Degree in Mathematics, University of Salerno.
11. Advisor of the thesis of Francesca Pappalardo, “Algoritmo MRI parallelo in ambiente CUDA e sua applicazione in ambito chirurgico”, Degree in Computer Science, University of Salerno.
12. Advisor of the thesis of Alberto Sergio, “Algoritmi numerici per la compressione di Immagini digitali”, Degree in Computer Science, University of Salerno.

13. Advisor of the thesis of Domenico Serra, “tecniche di animazione 3D in ambiente Maya”, Degree in Computer Science, University of Salerno.
14. Advisor of the thesis of Marie Nicole Staiti, “Metodi energy-preserving per problemi di Poisson”, Degree in Mathematics, University of Salerno.
15. Advisor of the thesis of Carmine Sorgente, “Algoritmi numerici di Music Information Retrieval”, Degree in Computer Science, University of Salerno.
16. Advisor of the thesis of Lorenzo Valente, “Aspetti numerici dell’imaging biomedico”, Degree in Computer Science, University of Salerno, in preparation.
17. Advisor of the thesis of Federico Vitale, “Metodologie numeriche di trattografia per la ricostruzione di fibre nervose”, Degree in Computer Science, University of Salerno.

A.Y. 2015-16

18. Advisor of the thesis of Antonio Calabria, “Algoritmi numerici per il Digital Image processing”, Degree in Computer Science, University of Salerno.
19. Advisor of the thesis of Maria Elena Cammarano, “Algoritmi numerici per il trattamento di immagini digitali”, Degree in Computer Science, University of Salerno.
20. Co-Advisor of the thesis of Emanuele Francesco Di Rubbo, “Metodi numerici per equazioni integrali stocastiche di Volterra”, Master Degree in Mathematics, University of Salerno.
21. Advisor of the thesis of Raffaele Donadio, “Approssimazione mediante B-spline per la computer graphics in ambiente Unity3D”, Degree in Computer Science, University of Salerno.
22. Advisor of the thesis of Davide Masticci, “Metodi numerici per la gestione di sistemi di raccomandazione”, Degree in Computer Science, University of Salerno.
23. Co-Advisor of the thesis of Alessandra Mastroianni, “Trattamento numerico a lungo termine di equazioni differenziali stocastiche oscillanti”, Degree in Mathematics, University of Salerno.
24. Co-Advisor of the thesis of Valerio Materazzo, “Tecniche di algebra lineare numerica per il trattamento di Big Data”, Master Degree in Mathematics, University of Salerno.
25. Advisor of the thesis of Mattia Tomeo, “Architettura CUDA ed implementazione dell’algoritmo del PageRank di Google”, Degree in Computer Science, University of Salerno.
26. Co-Advisor of the thesis of Andrea Ventola, “Metodi numerici equazioni Hamiltoniane stocastiche”, Master Degree in Mathematics, University of Salerno.

A.Y. 2014-15

27. Advisor of the thesis of Raffaella Coppola, “Metodi numerica di integrazione geometrica per problemi Hamiltoniani”, Degree in Mathematics, University of Salerno.
28. Co-Advisor of the thesis of Martina Moccaldi, “Metodi impliciti-espliciti (IMEX) per sistemi di reazione-diffusione con fitting non polinomiale”, Master Degree in Mathematics, University of Salerno.
29. Co-Advisor of the thesis of Carmen Scalone, “Risoluzione numerica di equazioni differenziali che modellizzano l’evoluzione di alcune classi di T-cellule”, Corso di Laurea Magistrale in Matematica, University of Salerno.

A.Y. 2013-14

30. Co-Advisor of the thesis of Lucia Caso, “Metodi impliciti-espliciti IMEX per equazioni alle derivate parziali e applicazioni in Immunologia”, Degree in Mathematics, University of Salerno.
31. Co-Advisor of the thesis of Fabrizio Ricci, “Metodi numerici per equazioni differenziali con soluzione oscillante nella dinamica cellulare”, Degree in Mathematics, University of Salerno.

A.Y. 2012-13

32. Co-Advisor of the thesis of Martina Moccaldi, “Metodi numerici conservativi per sistemi di equazioni differenziali ordinarie”, Degree in Mathematics, University of Salerno.
33. Co-Advisor of the thesis of Lucia Milo, “Metodi Runge-Kutta simmetrici per sistemi di equazioni differenziali ordinarie”, Degree in Mathematics, University of Salerno.

A.Y. 2011-12

34. Co-Advisor of the thesis of Salvatore Gallo, “Metodi numerici per equazioni differenziali ordinarie con termine noto discontinuo”, Degree in Mathematics, University of Salerno.

A.Y. 2010-11

35. Co-Advisor of the thesis of Elena Asciti, “Metodi Numerici per equazioni differenziali ordinarie basati su formule di differenziazione all’indietro modificate”, Degree in Mathematics, University of Salerno.
36. Co-Advisor of the thesis of Giuseppe De Martino, “Metodi G-simplettici per la risoluzione numerica di problemi hamiltoniani”, Master Degree in Mathematics, University of Salerno.

37. Co-Advisor of the thesis of Federica Gregorio, “Metodi numerici per $y'=f(x,y)$ con f discontinua”, Degree in Mathematics, University of Salerno.

A.Y. 2009-10

38. Co-Advisor of the thesis of Giovanna Califano, “Un'introduzione alle wavelets: dalla teoria matematica alle possibili applicazioni”, Degree in Mathematics, University of Salerno.

Prof. D'Ambrosio has also been tutor of the following stages at the Laboratory of Numerical Analysis of the University of Salerno:

A.Y. 2016-17

1. Giuseppe Adinolfi, “Algoritmi numerici in ambito social network”, Degree in Computer Science.
2. Francesco Apicella, “Algoritmi paralleli per problemi di elevata dimensione”, Degree in Computer Science.
3. Amedeo Aquino, “L'ambiente Maya per l'animazione 3D”, Degree in Computer Science.
4. Rosina Capuano, “B-spline e applicazioni”, Degree in Mathematics.
5. Angela Cesarano, “Algoritmi numerici paralleli in ambiente CUDA-C”, Degree in Computer Science.
6. Andrea De Maio, “Algoritmi numerici per il face recognition”, Degree in Computer Science.
7. Francesco Odierna, “Implementazione parallela di algoritmi per sistemi di raccomandazione”, Degree in Computer Science.
8. Francesca Pappalardo, “Sviluppo di software matematico in ambiente CUDA-C”, Degree in Computer Science.
9. Gaetano Semprevivo, “Algebra Lineare Numerica per la Big Data Analysis”, Degree in Mathematics.
10. Alberto Sergio, “Metodi numerici per la compressione di immagini”, Degree in Computer Science.
11. Domenico Serra, “Dynamica: un framework Pixar per la computer graphics”, Degree in Computer Science.
12. Carmine Sorgente, “Metodi numerici per il riconoscimento di suoni”, Degree in Computer Science.

13. Lorenzo Valente, “Algoritmi numerici per l’imaging biomedico”, Degree in Computer Science.
14. Federico Vitale, “Algoritmi numerici per la Computer Graphics”, Degree in Computer Science.
A.Y. 2015-16
15. Antonio Calabria, “Tecniche avanzate di Calcolo Scientifico per il digital image processing”, Degree in Computer Science.
16. Maria Elena Cammarano, “Tecniche di algebra lineare numerica nel trattamento di immagini”, Degree in Computer Science.
17. Natalina Cutillo, “Metodi numerici per il trattamento di Big Data”, Degree in Mathematics.
18. Raffaele Donadio, “L’ambiente UNITY3D per la Computer Graphics”, Degree in Computer Science.
19. Davide Masticci, “Metodi numerici per la Data Analysis”, Degree in Computer Science.
20. Domenico Serra, “NURBS e loro applicazioni all’animazione digitale”, Degree in Computer Science.
21. Mattia Tomeo, “L’ambiente CUDA per la programmazione parallela su Graphics Processing Units”, Degree in Computer Science.

L’Aquila, November 16, 2017