Curriculum Vitae

Zacharoula Kalogiratou

Zacharoula Kalogiratou is Professor of Numerical Analysis at the Department of Mathematics of the University of Western Macedonia, Greece. She received her degree in Mathematics (1987) from the National and Kapodistrian University of Athens. She received a master's degree (M.Sc.) in "Numerical Analysis and Computing" (1989) and Ph.D. in "Numerical Analysis" (1992) from the Department of Mathematics of the University of Manchester.

Her research is focused on numerical integration of ordinary differential equations She has published 38 articles in international scientific journals and more than 50 articles in conference proceeding. According to Scopus her work has received more than 2000 citations excluding self-citations (h–index 24). She is member of the editorial board of 3 international scientific journals and has served as a reviewer for several journals.

From September 2023 she is member of the Executive Council of the University of Western Macedonia, she was Dean of the School of Sciences (9/2019 - 8/2023). She is member of the Hellenic Mathematical Society, member of the association of Greek Women in Mathematics and local representative for the University of Western Macedonia.

Teaching Experience

2019 – : University of Western Macedonia, School of Science.
Department of Mathematics, courses: Numerical Analysis, Compute Programming, Numerical Integration of Ordinary Differential Equations.
Department of Informatics, courses: Numerical Analysis, Applied Mathematics.
Master of Science "Advanced Information Technologies and Services" organized by the Department of Informatics, course "Computational Methods", supervision of several dissertations.
1997-2019: Western Macedonia University of Applies Sciences (Kastoria),
Department of Informatics Engineering (2004-2019), Department of International Trade (1997-2004).
2008-2012: Hellenic Open University, adjunct faculty, course "Mathematics for Informatics".
2000-2002: Aristotle University of Thessaloniki, Department of Energy resource management (Kozani), adjunct faculty. adjunct faculty
1993-1997: Hellenic Airforce Academy, adjunct faculty.
1989-1992: University of Manchester, Department of Mathematics, teaching assistant.

Member of the Editorial Board *of the journals:*
- ✓ *Applied Mathematics and Computation* (Elsevier Publications)
- ✓ *Journal of Computational Mathematics and Data Science* (Elsevier Publications)
- ✓ *Numerical Analysis and Applicable Mathematics* (Ariviyal Publishing)
- ✓ *Mathematics (MDPI)*

Reviewer

- ✓ Computers and Mathematics with Applications (Elsevier)
- ✓ Journal of Computational and Applied Mathematics (Elsevier)
- ✓ Computer Physics Communications (Elsevier)
- ✓ Mediterranean Journal of Mathematics (Springer)
- ✓ Journal of Mathematical Chemistry (Springer)
- ✓ International Journal of Mathematics and Mathematical Sciences (Hindawi)
- ✓ Journal of Applied Mathematics, (Hindawi)
- ✓ Abstract and Applied Analysis, (Hindawi)
- ✓ Mathematical Methods in the Applied Sciences (Wiley)

Member of the Scientific Committee
International Conference of Computational Methods in Sciences and Engineering since 2009.
International Conference on Applied Economics since 2008.

Advisory and examination board of Ph.D. Theses
Member of the advisory board of one Ph.D. student, external member of the examination board of seven Ph.D. students, University of Peloponnese (3 students) National and Kapodistrian University of Athens (3 students) University of Bari Aldo Moro (1 student).

Journal Articles

1. Z. Kalogiratou, Th. Monovasilis, Construction of Two-Derivative Runge–Kutta Methods of Order Six, *Algorithms*, 16(12) 558 (2023).
2. Z. Kalogiratou, Th. Monovasilis, High order two-derivative Runge-Kutta methods with optimized dispersion and dissipation error, *Mathematics* 9(3) 232 , (2021) 1-11.
3. Y.C. Bassiakos, Z. Kalogiratou, T. Monovasilis, N. Tsounis, Computational method for approximating the behavior of a triopoly: An application to the mobile telecommunications sector in Greece, *International Journal of Computational Economics and Econometrics*, 11(1) (2020) 63-77.
4. Z. Kalogiratou, Th. Monovasilis, T. E. Simos, Two-derivative Runge-Kutta methods with optimal phase properties, *Mathematical Methods in the Applied Sciences* 43(3), (2020) 1267-1277
5. Z. Kalogiratou, Th. Monovasilis, T. E. Simos, New fifth order Two-Derivative Runge-Kutta methods with constant and frequency dependent coefficients, *Mathematical Methods in the Applied Sciences*, 42(6), (2019) 1955-1966.
6. .Th. Monovasilis, Z. Kalogiratou,·T. E. Simos, Trigonometrical fitting conditions for two derivative Runge-Kutta methods, *Numerical Algorithms*, 79(3), (2018) 787-800.
7. Th. Monovasilis, Z. Kalogiratou, Higinio Ramos, T. E. Simos, Modified two-step hybrid methods for the numerical integration of oscillatory problems, *Mathematical Methods in the Applied Sciences*, 40(14), (2017) 5286-5294.
8. Z. Kalogiratou, Th. Monovasilis, Higinio Ramos, T. E. Simos, A new approach on the construction of trigonometrically fitted two step hybrid methods, *Journal of Computational and Applied Mathematics*, 303 (2016) 146-155.
9. Higinio Ramos, Z. Kalogiratou, Th. Monovasilis,·T. E. Simos, An optimized two-step hybrid block method for solving general second order initial-value problems, *Numerical Algorithms*, 72 (2016) 1089-1102.

10. Th. Monovasilis Z. Kalogiratou and T.E. Simos, Construction of Exponentially Fitted Symplectic Runge–Kutta–Nyström Methods from Partitioned Runge–Kutta Methods, *Mediterranean Journal of Mathematics*, 13 (2016) 2271-2285.

11. Z. Kalogiratou, Th. Monovasilis and T.E. Simos, Symplectic Runge-Kutta-Nystrom Methods with phase-lag order 8 and infinity, *Applied Mathematics & Information Sciences*, 9(3), (2015) 1105-1112.

12. Z. Kalogiratou, Th. Monovasilis, Diagonally Implicit Symplectic Runge-Kutta methods with special properties, *Applied Mathematics & Information Sciences*, 9(1), (2015) 11-17.

13. Th. Monovasilis, Z. Kalogiratou, G. Psihoyios, T.E. Simos, Runge-Kutta type methods with special properties for the numerical integration of ordinary differential equations, *Physics Reports* (2014) 75-146. (Review)

14. Z. Kalogiratou, Th. Monovasilis, T.E. Simos, A fourth order modified trigonometrically fitted symplectic Runge–Kutta–Nyström method, *Computer Physics Communications*, 185 (2014) 3151-3155.

15. Th. Monovasilis, Z. Kalogiratou and T.E. Simos, Exponentially Fitted Symplectic Runge-Kutta-Nystrom methods, *Applied Mathematics & Information Sciences,* 7, (2013) 81-85.

16. Z. Kalogiratou, Diagonally implicit trigonometrically fitted symplectic Runge-Kutta methods, *Applied Mathematics and Computation* 219(14) (2013) 7406-7412.

17. Th. Monovasilis, Z. Kalogiratou and T.E. Simos, Two new phase-fitted symplectic partitioned Runge Kutta methods, *International Journal of Modern Physics C*, 22, 12, (2011) 1343-1355.

18. Z. Kalogiratou, Th. Monovasilis and T.E. Simos Modified Runge-Kutta-Nystrom Methods for the Numerical Integration of Schrodinger Equation, *Computers and Mathematics with Applications*, 60 (2010) 1639-1647.

19. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Symplectic Partitioned Runge–Kutta methods with minimal phase-lag, *Computer Physics Communications*, 181 (2010) 1251-1254.

20. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Computation of the eigenvalues of the Schrödinger equation by exponentially-fitted Runge–Kutta–Nyström methods, *Computer Physics Communications*, 180 (2009) 167-176.

21. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, A family of trigonometrically fitted partitioned Runge–Kutta symplectic methods, *Applied Mathematics and Computation*, 209 (2009) 91-96.

22. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Computation of the eigenvalues of the Schrödinger equation by symplectic and trigonometrically fitted symplectic partitioned Runge-Kutta methods, *Physics Letters A*, 372 (2008) 569-573.

23. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Families of Third and Fourth Algebraic Order Trigonometrically Fitted Symplectic Methods for the Numerical Integration of Hamiltonian Systems, *Computer Physics Communications*, 177 (2007) 757-763.

24. Kalogiratou Z., Symplectic Trigonometrically fitted Partitioned Runge-Kutta methods, *Physics Letters A*, 370 (2007) 1-7.

25. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Trigonometrically fitted and exponentially fitted symplectic methods for the numerical integration of the Schrödinger equation, *Journal of Mathematical Chemistry*, 40 (2006) 257-267.

26. Z. Kalogiratou, Th. Monovasilis, and T.E. Simos, Computation of the eigenvalues of the one-dimensional Schrödinger equation by symplectic methods, *International Journal of Quantum Chemistry*, 106 (2006) 795-802.

27. Z. Kalogiratou, Th. Monovasilis, T.E. Simos, A Symplectic Trigonometrically Fitted Modified Partitioned Runge-Kutta Method for the Numerical Integration of Orbital Problems, *Applied Numerical Analysis and Computational Mathematics*, 2 (2005) 359-364.

28. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Trigonometrically and Exponentially fitted Symplectic Methods of third order for the numerical integration of the Schrödinger equation, *Applied Numerical Analysis and Computational Mathematics*, 2 (2005) 238-244.

29. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Exponential- fitting symplectic methods for the numerical integration of the Schrödinger equation, *Journal of Mathematical Chemistry*, 37 (2005) 263-270.

30. Z. Kalogiratou, Th. Monovasilis, T.E. Simos, Numerical solution of the Two-Dimensional time-independent Schrödinger equation with exponential-fitting methods, *Journal of Mathematical Chemistry*, 37 (2005) 271-279.

31. Th. Monovasilis, Z. Kalogiratou, T.E. Simos, Numerical Solution of the two-dimensional time- independent Schrödinger Equation by Symplectic Schemes, *Applied Numerical Analysis and Computational Mathematics*, 1 (2004) 195-204.

32. Z. Kalogiratou, Th. Monovasilis, T.E. Simos, Symplectic integrators for the numerical solution of the Schrödinger equation, *Journal of Computational and Applied Mathematics*, 158 (2003) 83-92.

33. Z. Kalogiratou, T.E. Simos, Newton-Cotes Formulae for Long Time Integration, *Journal of Computational and Applied Mathematics,* 158 (2003),75-82.

34. Z. Kalogiratou, T.E. Simos, Construction of trigonometrically and exponentially-fitted Runge-Kutta-Nyström methods – a method of 8th algebraic order*, Journal of Mathematical Chemistry,* **31** (2002) 211-232.

35. Z. Kalogiratou, T.E. Simos, A P-stable Exponentially - Fitted Method for the Numerical Integration of the Schrödinger Equation, *Applied Mathematics and Computation*, 112 (2000) 99-112.

36. J. Williams, Z. Kalogiratou, Least squares and Chebyshev fitting for parameter estimation in ODEs, *Advances in Computational Mathematics*, 1(1993) 357-366.

37. J. Williams, Z. Kalogiratou, Nonlinear Chebyshev fitting from the solution of ordinary differential equations, *Numerical Algorithms*, 5 (1993) 325-337.

38. J. Williams, Z. Kalogiratou, Best Chebyshev approximation from families of ordinary differential equations, *IMA Journal Numerical Analysis*, 13 (1993) 383-395.

Book Chapters.

Z. Kalogiratou, Th. Monovasilis and T. E. Simos, Symplectic Partitioned Runge-Kutta Methods for the Numerical Integration of Periodic and Oscillatory Problems, (2011), *Recent Advances in Computational and Applied Mathematics*, pages 169-208, Springer, ISBN 978-90-481-9980-8.

Z. Kalogiratou, Th. Monovasilis, T.E. Simos, Asymptotically symplectic integrators of 3rd and 4th order for the numerical solution of the Schrödinger equation, *Computational Fluid and Solid Mechanics* (2003) 2012-2015.