

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	Mihaela		
Family name	Negreanu Pruna		
Gender (*)	Female	Birth date (dd/mm/yyyy)	
Social Security, ID number			
Open Researcher and Contributor ID (ORCID) (*)			

(*) *Mandatory*

A.1. Current position

Position	Full University Professor
Key words	Lubrication Theory, Partial Differential Equations, Mathematical Biology, Chemotaxis, Control Theory, Optimization, etc.

A.2. Previous positions (research activity interruptions, indicate total months)

Teaching Assistant	West University of Timisoara, Faculty of Mathematics	1997-1998
Fellowship Sócrates-Erasmus	University Complutense of Madrid	1998-1999
Predocctoral fellowship	University Complutense of Madrid	2001-2004
Teaching and Research Assistant	ETH, Swiss Federal Institute of Technology Zurich, Suiza	1/11/2002-1/05/2003
Assistant professor	Faculty of computer science, UCM	18/02/2004-30/10/2006
Assistant professor	Faculty of Matematics, UCM	01/11/2006-23/01/2008
Associate professor at the university	Faculty of Chemical Sciences, UCM	24/01/2008-08/03/2024

A.3. Education

Degree/Degree/Doctorate	University	Year
Degree in Mathematics	West University of Timisoara, Rumanía	1997
Degree in Computer Science	West University of Timisoara, Rumanía	1998
Master's Degree in Mathematical Sciences	West University of Timisoara, Rumanía	1998
PhD in Mathematical Sciences	Complutense University of Madrid	2004

A.3. General indicators of the quality of scientific research output

Number of six-year research fellowships: 3 (date of last award: 2021)

Total Citations (Researcher ID): 833

Average number of citations per year in the period [2012-2021]: 9.8

The number of total publications in the first quartile (Q1) is 60.
h-index (Researcher ID): 14

Part B. CV SUMMARY (*max. 5000 characters, including spaces*)

My research is framed in the area of Applied Mathematics and more particularly in Partial Differential Equations, their Numerical Analysis, Control and Optimisation (an important part of my first years of research and PhD Thesis (Numerical Methods for the Analysis of Wave Propagation, Observation and Control), Lubrication Theory, Mathematical Biology, Chemotaxis, all with the aim of contributing to the modelling, simulation, design and control of various natural phenomena and industrial processes. The main results obtained in the first line deal with the stability of solutions and their asymptotic behaviour. I have been fortunate to be able to collaborate with important colleagues, to investigate and discover, but, above all, to learn in this fascinating field. I have also had the opportunity to collaborate in a number of collective projects, and so I have become increasingly aware of the importance of trying to spread the interest of the work we do, which I have done through research articles.

Research interests

Partial Differential Equations, mathematical biology, chemotaxis, control theory, optimization, and the Lubrication Theory of fluid dynamics.

Thesis on Numerical Methods for the Analysis, Observation and Control of waves in one dimension by the UCM, under the direction of Enrique Zuazua Iriondo.

Recognized for the work on chemotaxis and the control problems, with the main results involving the existence and asymptotic behavior of solutions for systems with chemotaxis, or contributing to the modelling, simulation, design and control of various natural phenomena and industrial processes.

Many national and international Research projects and currently is the 2 Head Researcher at the UCM/UNED project on Non-linear Systems in Industrial Mathematics and Applications.

Since November 2, 2022 I have the ANECA accreditation for University Professor.

Part C. RELEVANT MERITS (*sorted by typology*)

C.1. Publications (*see instructions*)

1. A. García, M. Negreanu, F. Ureña, A.M. Vargas.2025. On the numerical solution to space fractional differential equations using meshless finite differences, Journal of Computational and Applied Mathematics 457, 116322
2. A. García, M. Negreanu, F. Ureña, A.M. Vargas.2024. Solving nonlinear Fisher–Kolmogorov–Petrovsky–Piskunov equation using two meshless methods, Computational Particle Mechanics 11 (6), 2373-2379.
3. A. García, M. Negreanu, F. Ureña, A.M. Vargas.2024. Numerical solution of a hydrodynamic model with cavitation using finite difference method at arbitrary meshes, Applied Numerical Mathematics 205, 195-205.
4. A. García, M. Negreanu, F. Ureña, A.M. Vargas.2024. On the comparison of two meshless finite difference methods for solving shallow water equations, Bulletin of the Iranian Mathematical Society 50 (1), 3
5. F Herrero-Hervás, M Negreanu, AM Vargas. 2023. Convergence of a meshless numerical method for a chemotaxis system with density-suppressed motility, Computers & Mathematics with Applications 148, 293-301
6. J Flores, A García, M Negreanu, E Salete, F Ureña, AM Vargas. 2023. A spatio-temporal fully meshless method for hyperbolic PDEs, Journal of Computational and Applied Mathematics 430, 115194.
7. M Negreanu, AM Vargas. 2023. Ecuaciones diferenciales: En diferencias y derivadas parciales, Comercial Grupo ANAYA, SA.
8. M Negreanu, JI Tello, AM Vargas. 2023. On a Parabolic-ODE chemotaxis system with periodic asymptotic behavior, Contemporary Mathematics 787, 787-91.
9. M Aquino, M Negreanu, AM Vargas. 2022. A meshless numerical method for a system with intraspecific and interspecific competition, Engineering Analysis with Boundary Elements 145, 242-257.
10. M Negreanu, AM Vargas. 2022. Dynamics in a Chemotaxis Model with Periodic Source, Mathematics 10 (3), 312

11. A. García; M. Negreanu; F. Ureña; A.M. Vargas. 2021. A Note on a Meshless Method for Fractional Laplacian at Arbitrary Irregular Meshes, *Mathematics*. 9-22, pp.2843.
12. A. García; J.J. Benito; L. Gavete; M. Negreanu; F. Ureña. 2021. Convergence and Numerical Solution of a Model for Tumor Growth, *Mathematics*. 9-12.
13. J.J. Benito; A. García; L. Gavete; M. Negreanu; F. Ureña; A.M. 2021. Convergence and numerical simulations of prey-predator interactions via a meshless method *Applied Numerical Mathematics*. 161, pp.333-347.
14. A. García; M. Negreanu; F. Ureña; A.M. Vargas. 2021. Convergence and numerical solution of nonlinear generalized Benjamin-Bona-Mahony-Burgers equation in 2D and 3D via generalized finite difference method, *International Journal of Computer Mathematics*.
15. Mihaela Negreanu; J. Ignacio Tello; A.M. Vargas. 2021. On a fully parabolic chemotaxis system with nonlocal growth term *Nonlinear Analysis: Theory, Methods and Applications*. Elsevier. 213, 112518.
16. E. Saleté; J. Flores; A. García; M. Negreanu; F. Ureña; A.M. Vargas. 2021. Solving Eikonal equation in 2D and 3D by generalized finite difference method *Computational and Mathematical Methods*.
17. J.J. Benito; A. García; L. Gavete; M. Negreanu; F. Ureña; A.M. Vargas. 2021. Solving Monge-Ampère equation in 2D and 3D by Generalized Finite Difference Method, *Engineering Analysis with Boundary Elements*. Elsevier. 124, pp.52-63.
18. J.J. Benito; A. García; L. Gavete; M. Negreanu; F. Ureña; A.M. Vargas. 2021. Solving a reaction-diffusion system with chemotaxis and non-local terms using Generalized Finite Difference Method. Study of the convergence, *Journal of Computational and Applied Mathematics*. 389-113325.
19. M. Aquino; R. Dáger; M. Negreanu. 2021. Uniform Boundedness of Solutions for a Two Species Taxis System with Intraspecific and Interspecific Competition Results in *Mathematics*. 76-2, 112518.
20. Mihaela Negreanu; A.M. Vargas. 2020. Continuous and discrete periodic asymptotic behavior of solutions to a competitive chemotaxis PDEs system *Communications in Nonlinear Science and Numerical Simulation*.
21. M. Negreanu. 2020. Global existence and asymptotic behavior of solutions to a chemotaxis system with chemicals and prey-predator terms , *Discrete and Continuous Dynamical Systems - Series B*. 25-9, pp.3335-3355.
22. M. Negreanu; J.I. Tello; A.M. Vargas. 2020. On a Parabolic-ODE chemotaxis system *Applied Mathematics Letters*. 106.
23. M. Negreanu; J.I. Tello; A.M. Vargas. 2020. On a fully parabolic chemotaxis system with source term and periodic asymptotic behavior *Z. Angew. Math. Phys.* Springer Nature.. 72-65.
24. M. Negreanu; J.I. Tello. 2020. On a comparison method to reaction-diffusion system and its applications to chemotaxis *Discrete and Continuous Dynamical Systems. Serie S.A.I.M.S* 13, 279-292.
25. J.J. Benito; A. García; L. Gavete; M. Negreanu; F. Ureña; A.M. Vargas 2020. On the convergence of the generalized finite difference method for solving a chemotaxis system with no chemical diffusion *Computational Particle Mechanics*.
26. J.J. Benito; A. García; L. Gavete; M. Negreanu; F. Ureña; A.M. Vargas. 2020. Solving a chemotaxis-haptotaxis system in 2D using Generalized Finite Difference Method, *Computers and Mathematics with Applications*. 80-5, pp.762-777.
27. J.J. Benito; A. García; L. Gavete; M. Negreanu; F. Ureña; A.M. Vargas 2020. Solving a fully parabolic chemotaxis system with periodic asymptotic behavior using Generalized Finite Difference Method, *Applied Numerical Mathematics*. 157.
28. R. Dáger; V. Navarro; M. Negreanu; A.M. Vargas. 2020. Uniform asymptotic behavior of numerical solutions for a predator-prey system with diffusion and chemotaxis *Engineering Analysis with Boundary Elements*. Elsevier. 120, pp.82-94.
29. R. Dáger; V. Navarro; M. Negreanu. 2020. Uniform boundedness for a predator-prey system with chemotaxis and dormancy of predators *Quart. Appl. Math.*

30. R. Dáger; V. Navarro; M. Negreanu. 2020. Uniform boundedness of solutions for a predator-prey system with diffusion and chemotaxis, *Comptes Rendus Mathématique*. 357-1, pp.103-108.
31. M. Negreanu; J.I. Tello. 2019. Global existence and asymptotic behavior of solutions to a Predator-Prey chemotaxis system with two chemicals *Journal of Mathematical Analysis and Applications*. Elsevier. 474-2, pp.1116-1131.
32. A.M. Vargas; M. Negreanu; J.I. Tello. 2019. On a parabolic-elliptic chemotaxis system with periodic asymptotic behavior. *Mathematical Methods in the Applied Sciences*.42-4, pp.1253-1265.
33. L. Bonilla; A. Carpio; M. Carretero; G. Duro; M. Negreanu; F. Terragnia. 2018. A convergent numerical scheme for integrodifferential kinetic models of angiogenesis.*Journal of Computational Physics*. 375. 375, pp.1270-1294.
34. E. Cruz; M. Negreanu; J.I. Tello. 2018. Asymptotic behavior and global existence of solutions to a two-species *Zeitschrift fur Angewandte Mathematik und Physik*. Springer. 69-4, pp.69-107.
35. M. Negreanu; J.I. Tello. 2018. On a Parabolic-Elliptic system with gradient dependent chemotactic coefficient.*Journal of Differential Equations*. Elsevier. 265, pp.733-751.
36. A Carpio; G. Duro; M. Negreanu. 2017. Constructing solutions for a kinetic model of angiogenesis in annular domains.*Applied Mathematical Modelling*. 45, pp.303-322.
37. M. Negreanu; J.I. Tello. 2015. Asymptotic stability of a two species chemotaxis system with non-diffusive chemoattractant, *Journal of Differential Equations*.Elsevier. 258, pp.1592-1617.
38. R. Dáger; M. Negreanu; J.I. Tello. 2015. On an inverse problem for the compressible Reynolds equation. *Quarterly of Applied Mathematics*. American Mathematical Society. 73, pp.607-614.
39. M. Negreanu; J.I. Tello. 2014. Asymptotic stability of a mathematical model of cell population *Journal of Mathematical Analysis and Applications*. Elsevier. 415-6, pp.963-971.
40. M. Negreanu; J.I. Tello. 2014. On a two species chemotaxis model with slow chemical diffusion *SIAM Journal on Mathematical Analysis*. SIAM. 46-6, pp.3761-3781.
41. M. Negreanu; J.I. Tello. 2013. On a parabolic–elliptic chemotactic system with non-constant chemotactic sensitivity *Nonlinear Analysis: Theory, Methods & Applications*. Elsevier. 80, pp.1-13.
42. M. Negreanu; J.I. Tello. 2013. On a Comparison method to reaction-diffusion systems and its applications to chemotaxis. *Discrete and Continuous Dynamical Systems - Series B (DCDS-B)*. A.I.M.S.. 18-10, pp.2669-2688.
43. M. Negreanu; J.I. Tello. 2013. On a competitive system under chemotactic effects with non-local terms *Nonlinearity*. London mathematical Society.. 26, pp.1083-1103.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

1. Continuous and discrete periodic asymptotic behavior of solutions to a competitive chemotaxis PDEs system. XXVII CONGRESS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS XVI CONGRESS OF APPLIED MATHEMATICS. 2022. Spain.
2. Global existence and asymptotic behavior of solutions to a chemotaxis system with chemicals and prey-predator terms. DIFFERENTIAL EQUATIONS AND APPLICATIONS XVI CONGRESS OF APPLIED MATHEMATICS. 2021. Spain.
3. A two-species chemotaxis system with two chemicals. Mathematical aspects of chemotaxis, cross-diffusion effects and concentration phenomena. Banach Center in Warsaw. 2018.
4. Asymptotic stability of a chemotaxis system with non-diffusive chemoattractant. The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications. ICMAT, Madrid, España. 2017.
5. On a competitive system under chemotactic effects with non-local terms. Workshop on Nonlinear Partial Differential Equations. Universidad Complutense de Madrid, España. 2017.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

- 1 Project PID2022-141114NB-I00, Modelos Matemáticos en Quimiotaxis. Mihaela Negreanu by Ministerio de Ciencia e Innovación (Spain).
2. Project. MTM2017-83391-P, Sistemas no lineales en Matemática industrial y otras Aplicaciones. Mihaela Negreanu. (Ministerio de Ciencia e Innovación.). 01/01/2018-20/09/2022. 39.809 €.
- 3 Project. MTM2013-42907-P Problemas inversos en lubricación industrial y otros problemas no lineales. J.I. Tello. (MINECO Ministerio de Economía y Competitividad). 01/01/2014-31/12/2017. 37.800 €.
- 4 Project. MTM2009-13655 Sobre la interacción fluido estructura en teoría de la lubricación. J.I. Tello. (Ministerio de Ciencia e Innovación). 01/01/2010- 31/12/2013. 31.823 €.