



**Vasile Staicu,
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PhD (since 1990) in Mathematics

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ACADEMIC DEGREES:

- *Licenta in Matematica* (1984, University of Bucharest, Romania);
- *Doctor Philosophiae in Functional Analysis and Applications* (1990, International School for Advanced Studies in Trieste, Italy);
- *Doutor em Ciencias Matematicas (Analise)* (1995, University of Evora, Portugal);
- *Agregação em Matematica* (2001, University of Aveiro, Portugal)

EXPERIENCE:

- *Full Professor of Mathematics, University of Aveiro, Portugal (since 2003);*
- *Director of the Doctoral Program in Mathematics of the University of Aveiro (since February 2013);*
- *Scientific Coordinator of the Department of Mathematics of Aveiro University (2005-2007);*
- *Founder and Editor in Chief of the Libertas Mathematica (new series), which continues Libertas Mathematica, founded and edited by Professor Constantin Corduneanu during the period 1981-2011.*
- *Assessment experience:* joined several Panels of the Portuguese Science and Technology Foundation (FCT) to Assess the Final reports of research funded projects in mathematics (2004-2010) and to assess competitions for FCT PhD grants; evaluated grant applications under the bilateral agreements of FCT with other countries; Is an registered expert of the Romanian National Council of the University and Scientific Research (CNCSIT) since 2005 and evaluated several grant applications; evaluated grant applications for several national and international agencies: the Slovak Research and Development Agency, Bratislava, Slovakia (evaluated applications for grants (since 2006); The Foundation for Polish Science, Warsaw, Poland (since 2008); The Georgia National Science Foundation (GNSF), Tbilisi, Georgia (since 2009); The GRICES - INVOTAN Agency, Lisbon, Portugal (since 1996). Is an registered expert and evaluated proposals for the 6th and 7th research framework programs of the European Commission (since 2003); for The Education Audiovisual Culture Executive Agency (EACEA) of the European Commission, (expert for Erasmus Mundus, Tempus, and Eurydice programs) and recently invited to evaluate proposals for COST (European Cooperation in Science and Technology).

RESEARCH INTERESTS

Began research activities during the undergraduate courses, at the University of Bucharest, in under the guidance of Stefan Mirica and Aristide Halanay. Then started a research in the area of Control Theory, under the guidance of Professor Roberto Conti (University of Florence , Italy), and later began research in the area of Differential inclusions under the guidance of Professor Arrigo Cellina. Since 2005 is studying existence and multiplicity of solutions for various classes of second order boundary value problems involving nonlinear differential operators (the operator p -Laplacian or p -Laplacian-like operator) and nonsmooth and multivalued terms, using and developing tools and methods of nonlinear analysis, in collaboration with several mathematicians (Sergiu Aizicovici (USA), Nikolaos Papageorgiou (Greece), Eugenio Rocha and Sandrina Santos (Portugal)), Giovanni Porru (Italy)).

Presently, several projects are in progress. Jointly with Alberto Bressan from Penn State University (USA) we are developing a program on the use of measure theory tools to study differential inclusions as substitute of topological tools. Jointly with Arrigo Cellina, from the University of Milan "Bicocca", we study existence of solutions for nonconvex

differential inclusions and minimum problems for integral functional constrained by nonconvex differential inclusions. In collaboration with Mitsuharu Otani from Waseda University in Tokyo, Japan, we study existence and regularity of solutions to various problems (Dirichlet, Neumann, periodic) for differential inclusions involving the p -Laplacian operator, monotone operators and multivalued perturbations.

In collaboration with Nikolaos S. Papageorgiou from Technical University of Athens (Greece) and Sergiu Aizicovici from University of Athens, Ohio, USA, continue to study boundary value problems involving nonlinear differential operators and nonsmooth or multivalued terms. A book is in progress to be published by Springer.

In collaboration with Giovanni Porru and his group at the University of Cagliari (Italy) are studied second order boundary value problems involving nonlinear differential operators (Laplacian, p -Laplacian), multivalued terms, bow-up solutions and estimates for solutions.

AWARDS AND HONORS

- In July 1984 received the “*Sirghie Foundation Award for the best graduate of the Faculty of Mathematics of the University of Bucharest.*”
- In August 1997 was elected *Member of the New York Academy of Science.*
- Since June 1998 is a *Full Member of the American-Romanian Academy of Science and Arts (ARA)*, by election.
- Since June 2013 is an elected *Member of the Board of Directors of the American-Romanian Academy of Science and Arts (ARA)*,

PUBLICATIONS (SELECTED):

Books:

1. V. Staicu (Editor): *Differential Equations, Chaos and Variational Problems*, Birkhauser, Basel, 2007, 435 p., Hardcover, ISBN: 978-3-7643-8481-4.
2. S. Aizicovici, N. S. Papageorgiou and V. Staicu: *Degree theory for operators of monotone type and nonlinear elliptic equations with inequality constraints*, *Memoirs of the American Mathematical Society*, 2008; 70 pp; softcover, Volume: 196, ISBN-10: 0-8218-4192-0, ISBN-13: 978-0-8218-4192-1

Chapters of books:

1. V. Staicu: *Qualitative properties of solution sets to Lipschitzian differential inclusions*, *Proceedings of the International Conference on Differential Equations, EQUADIFF '91*, Barcelona, Spain, (C. Perello, C. Simo, J. Sola-Morales, Editors), vol.2, 910-914, World Sci. Publ., 1993.
2. V. Staicu: *On the solution sets to nonconvex differential inclusions of evolution type*, *Proceedings of the International Conference on Dynamical Systems & Differential Equations*, May 29-June 1, 1996, Springfield, Missouri, U.S.A. (W. Chen and S. Hu, Editors), vol. 2, 244-252, Southwest Missouri State University, 1998.
3. V. Staicu: *Nonconvex perturbations of maximal monotone differential inclusions*, *Proceedings of the RIMS Symposium on nonlinear evolution equations*, Kyoto, Japan, October 20-23, 1997, (M. Otani Editor), RIMS Kokyoku 1061 (1998), 95-107.
4. V. Staicu: *New results concerning evolution inclusions in Banach spaces*, in *Proceedings of the Conference on Differential & Difference Equations and Applications*, (Ravi P. Agarwal, and Kanishka Perera, Editors), 1019-1027, Hindawi Publishing Corporation, 2006.
5. S. Aizicovici, N. S. Papageorgiou and V. Staicu: *Three nontrivial solutions for the p -Laplacian Neumann problems with a concave nonlinearity near the origin*, *Nonlinear analysis and optimization*, *Proceedings of the conference held in celebration of Alex Ioffe's 70th and Simeon Reich's 60th birthdays at the Technion, Haifa*, June 18–24, 2008. Edited by A. Leizarowitz, B. S. Mordukhovich, I. Shafir and A. J. Zaslavski, *Contemporary Mathematics*, vol. 513, 263 pp., ISBN-10: 0-8218-4834-8, ISBN-13: 978-0-8218-4834-0.

Papers in refereed international journals:

1. V. Staicu: *Multifunctions in parametric linear programming*, (in Romanian), *Stud. Cerc. Mat.*, 37 (1985), 572-578.
2. A. Andreini and V. Staicu: *On the reachable sets of a linear control system*, *Boll. Un. Mat. Ital.*, 2A (1988), 353-357.
3. A. Margheri and V. Staicu: *On the return sets of a linear control system*, *Boll. Un. Mat. Ital.*, 2A (1988), 359-364.
4. V. Staicu: *Generalized derivatives for C^1 -parametrized multifunctions*, *Boll. Un. Mat. Ital.*, 3B (1989), 523-532.
5. V. Staicu: *Minimal time function and viscosity solutions*, *J. Optim. Theory Appl.*, 60 (1989), 81-91.
6. V. Staicu: *On the existence of solutions to a class of differential inclusions*, *Rend. Sem. Mat. Univ. Polit. Torino*, 48 (1990), 137-142.
7. R. Colombo, A. Fryszkowski, T. Rzezuchowski and V. Staicu: *Continuous selections of solution sets to Lipschitzian differential inclusions*, *Funkcial. Ekvac.*, 34 (1991), 321-330.
8. A. Cellina and V. Staicu: *On evolution equations having monotonicities of opposite sign*, *J. Differential Equations*, 90 (1991), 71-80.

9. V. Staicu: Continuous selections of solution sets to evolution equations, *Proc. Amer. Math. Soc.*, 113 (1991), 403-413.
10. H. Wu and V. Staicu: Arcwise connectedness of solutions sets to Lipschitzian differential inclusions, *Boll. Un. Mat. Ital.*, 5-A (1991), 253-256.
11. A. Cellina and V. Staicu: Well posedness for differential inclusions on closed sets, *J. Differential Equations*, 92 (1991), 2-13.
12. V. Staicu: On a non-convex hyperbolic differential inclusion, *Proc. Edinburgh Math. Soc.*, 35 (1992), 375-382.
13. M. Bardi and V. Staicu: The Bellman equation for time-optimal control of non-controllable nonlinear systems, *Acta Appl. Math.*, 31 (1993), 201-223.
14. Z. Denkowski and V. Staicu: Asymptotic behaviour of minima to a class of optimization problems for differential inclusions, *J. Optim. Theory Appl.*, 81 (1994), 21-34.
15. A. Bressan and V. Staicu: On non-convex perturbations of maximal monotone differential inclusions *Set-valued Analysis*, 2 (1994), 415-430.
16. F. S. De Blasi, G. Pianigiani and V. Staicu: Topological properties of non-convex differential inclusions of evolution type, *Nonlinear Anal., Th. Meth. Appl.*, 24 (1995), 711-720.
17. F. S. De Blasi, G. Pianigiani and V. Staicu: On the solution sets to some non-convex hyperbolic differential inclusions, *Czechoslovak Math. J.*, 45 (1995), 107-116.
18. S. A. Marano and V. Staicu: On the set of solutions to a class of nonconvex nonclosed differential inclusions, *Acta Mathematica Hungarica*, 76 (1997), 263-277.
19. V. Staicu: On the solution sets to differential inclusions on an unbounded interval, *Proc. Edinburgh Math. Soc.*, 43 (2000), 475-484.
20. A. Cernea and V. Staicu: Existence of solutions to a class of evolution inclusions, *Nonlinear Anal.*, 50 (2002), no. 7, Ser. A: Theory Methods, 1025--1034.
21. V. Staicu: Comparison of minimizers to a class of integral functionals of the gradient, *Annals of the University of Craiova - Mathematics and Computer Science series*, XXIX (2002), 10-18.
22. A. Cernea and V. Staicu: Directionally continuous selections and nonconvex evolution inclusions, *Set-Valued Anal.*, 11 (2003): 9-20.
23. V. Staicu: Arcwise connectedness of sets of solutions to differential inclusions, *J. Mathematical Sciences*, 120 (2004), 1006-1015.
24. S. Aizicovici and V. Staicu: Continuous selections of solution sets to Volterra integral inclusions in Banach spaces, *Electronic Journal of Differential Equations*, Vol. 2006(2006), No. 01, pp. 1--11.
25. S. Aizicovici and N. S. Papageorgiou and V. Staicu: Periodic solutions for second order differential inclusions with scalar p -Laplacian, *Journal Math. Anal. Appl.* 322(2006), 913-929.
26. S. Aizicovici, N. S. Papageorgiou and V. Staicu: Resonant nonlinear periodic problems with the scalar p -Laplacian and nonsmooth potential, *Topological Methods in Nonlinear Analysis*, 27(2006), 269-288.
27. S. Aizicovici, N. S. Papageorgiou and V. Staicu: Periodic solutions of nonlinear evolution inclusions in Banach spaces, *J. Nonlinear Convex Analysis*, 7(2006), 163-177. Erratum
28. N. S. Papageorgiou and V. Staicu: The method of upper-lower solutions to nonlinear second order differential inclusions, *Nonlinear Anal.* 67(2007), 708-726.
29. N. S. Papageorgiou and V. Staicu: Multiple solutions for strongly resonant periodic systems, *Nonlinear Analysis*, 67(2007), 1895-1907.
30. S. Aizicovici, N. S. Papageorgiou and V. Staicu: Multiple nontrivial solutions for nonlinear periodic problems with the p -Laplacian, *J. Differential Equations*, 243(2007), 504-535.
31. S. Aizicovici and V. Staicu: Multivalued evolution equations with nonlocal initial conditions in Banach spaces, *Nonlinear Differential Equations and Applications*, 14(2007), 361-376.
32. N. S. Papageorgiou, E. Rocha and V. Staicu: A multiplicity theorem for hemivariational inequalities with p -Laplacian like differential operator, *Nonlinear Anal.*, 69(2008), 1150-1163.
33. N. S. Papageorgiou, S. R. Andrade Santos and V. Staicu: Three nontrivial solutions for the p -Laplacian with a nonsmooth potential, *Nonlinear Anal.* 68(2008), 3812-3827.
34. M. E. Filippakis, N. S. Papageorgiou and V. Staicu: Eigenvalue problems for nonlinear elliptic equations with unilateral constraints, *Nonlinear Anal.*, 69(2008), 85-109.
35. N. S. Papageorgiou and V. Staicu: Multiple nontrivial solutions for doubly resonant periodic problems, *Canadian Math. Bulletin.* 53(2010), 347-359.

36. S. Aizicovici, N. S. Papageorgiou and V. Staicu: The spectrum and an index formula for the Neumann p-Laplacian and multiple solutions for problems with crossing nonlinearity, *Discrete and Continuous Dynamical Systems*, 25(2009), 431-456.
37. N. S. Papageorgiou, E. Rocha and V. Staicu: Multiplicity theorems for superlinear elliptic problems, *Calc. Var. Partial Differential Equations*, 33(2008), 199-230.
38. N. S. Papageorgiou, E. Rocha and V. Staicu: On the existence of three nontrivial smooth solutions for nonlinear elliptic equations, *Journal of Nonlinear and Convex Analysis*, 11(2010) .
39. N. S. Papageorgiou, S. R. Andrade Santos and V. Staicu: Nontrivial solutions for nonvariational quasilinear Neumann problems, *Topological Meth. Nonlinear Anal.* 36(2010), 39-60.
40. N. S. Papageorgiou, S. R. Andrade Santos and V. Staicu: On the existence of nontrivial solutions for resonant Neumann problems, (with N. S. Papageorgiou and S. R. Andrade Santos), *Journal of Nonlinear and Convex Analysis*, 9(2008), 351-360.
41. S. Aizicovici, N. S. Papageorgiou and V. Staicu: Existence of multiple solutions with precise sign information for superlinear Neumann problems, *Ann. Mat. Pura Appl.*, 188(2009), 679-715.
42. S. Aizicovici, N. S. Papageorgiou and V. Staicu: Multiple positive solutions for a p-Laplacian Dirichlet problem with superdiffusive reaction, *Houston J. Math.* , 36(2010), 313-333
43. M. E. Filippakis, N. S. Papageorgiou and V. Staicu: Positive Solutions for Nonlinear Periodic Problems, *Positivity*, 12 (2008), 733--750.
44. N. S. Papageorgiou, S. R. Andrade Santos and V. Staicu: Eigenvalue problems for hemivariational inequalities, *Set-Valued Analysis*, 16(2008), 1061-1087.
45. S. Aizicovici and N. S. Papageorgiou and V. Staicu: On a p-superlinear Neumann p-Laplacian equation *Topological Meth. Nonlinear Anal.*, 34(2009), 111-130.
46. S. Aizicovici and N. S. Papageorgiou and V. Staicu: Multiple solutions for superlinear p-Laplacian Neumann problems, *Osaka J. Math.*, 49(2012), 699-740.
47. S. Aizicovici and N. S. Papageorgiou and V. Staicu: Existence and multiplicity of solutions for resonant nonlinear Neumann problems, *Topological Meth. Nonlinear Anal.*, 35(2010), 235-252.
48. N. S. Papageorgiou, A. I. Santos Coelho Rodrigues and V. Staicu: On resonant Neumann problems: multiplicity of solutions, *Nonlinear Anal.*, 74(2011), 6487-6498.
49. S. Aizicovici and N. S. Papageorgiou and V. Staicu: Nonlinear resonant periodic problems with concave terms, *J. Math, Anal. Appl.*, 375(2011), 342-364.
50. S. Aizicovici and N. S. Papageorgiou and V. Staicu: Positive solutions for nonlinear periodic problems with concave terms, *J. Math, Anal. Appl.*, 381(2011), 866-883.
51. Sergiu Aizicovici, Nikolaos Papageorgiou, Vasile Staicu: p-Laplace equations with singular terms and p-superlinear perturbation, *Libertas Math. (new ser.)*, 32(2012), 77-95.
52. S. Aizicovici, N. S. Papageorgiou, and V. Staicu: Positive solutions for nonlinear nonhomogeneous periodic eigenvalue problems, *Annals of the University of Bucharest*, 3(LXI)(2012), 129-144.
53. S. Aizicovici, N. S. Papageorgiou and V. Staicu: On p-superlinear equations with a nonhomogeneous differential operator, *NoDEA - Nonlinear Diff. Equations Appl.*, 20(2013), 151-175.
54. S. Aizicovici, N. S. Papageorgiou, and V. Staicu: Nonlinear periodic problems superlinear at $+\infty$ and sublinear at $-\infty$, *Libertas Math. (new ser.)*, 33(2013), 27-56.
55. Sergiu Aizicovici, Nikolaos Papageorgiou, Vasile Staicu: Nodal and multiple solutions for nonlinear periodic problems with competing nonlinearities, *Comm. Contemp. Math*, Vol. 15, No. 3 (2013) 1350001 (29 pages)
56. S. Aizicovici, N. S. Papageorgiou, and V. Staicu: Nonlinear periodic problems superlinear at $+\infty$ and sublinear at $-\infty$, *Libertas Math. (new ser.)*, 33(2013), 27-56.
57. S. Aizicovici, N. S. Papageorgiou, and V. Staicu: Multiplicity of solutions for a class of nonlinear nonhomogeneous elliptic equations, *J. Nonlinear Convex Anal.*, 15(2014), 7-34.