

List of Publications

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List of the ten relevant papers included in the habilitation file.

1. A. Buică, I. A. García, S. Maza, Multiple Hopf bifurcation in \mathbb{R}^3 and inverse Jacobi multipliers , *J. Differential Equations* 256 (2014) 310-325.
2. A. Buică, J. Giné, J. Llibre, Periodic solutions for nonlinear differential systems: the second order bifurcation function, *Topol. Meth. Nonlin. Anal.*, accepted.
3. A. Buică, I. A. García, S. Maza, Existence of inverse Jacobi multipliers around Hopf points in \mathbb{R}^3 : emphasis on the center problem, *J. Differential Equations* 252 (2012) 6324-6336.
4. A. Buică, R. Ortega, Persistence of equilibria as periodic solutions of forced systems, *J. Differential Equations* 252 (2012) 2210-2221.
5. A. Buică, J. Llibre, O. Makarenkov, Bifurcations from nondegenerate families of periodic solutions in Lipschitz systems, *J. Differential Equations* 252 (2012) 3899-3919.
6. A. Buică, J. Llibre, O. Makarenkov, Asymptotic stability of periodic solutions for non-smooth differential equations with application to the nonsmooth van der Pol oscillator, *SIAM J. Math. Anal.* 40 (2009) 2478-2495.
7. A. Buică, J. Giné, J. Llibre, Bifurcation of limit cycles from a polynomial degenerate center, *Adv. Nonlin. Stud.* 10 (2010) 597-609.
8. A. Buică, A. Daniilidis, Stability of periodic solutions for Lipschitz systems obtained via the averaging method, *Proc. Amer. Math. Soc.* 135 (2007) 3317-3327.
9. A. Buică, J.-P. Francoise, J. Llibre, Periodic solutions for nonlinear periodic differential systems with a small parameter, *Commun. Pure Appl. Anal.* 6 (2007) 103-111.
10. A. Buică, J. Llibre, Averaging methods for finding periodic orbits via Brouwer degree, *Bull. sci. math.* 128 (2004) 7-22.

PhD Thesis.

1. *Principii de coincidență și aplicații* (Coincidence principles and applications)
 - realized at Babeș-Bolyai University
 - supervisor Prof. dr. I.A. Rus
 - defended on December 15, 2000
 - published at Presa Universitară Clujană, Cluj-Napoca, 2001.

Books.

1. A. Buică, *Periodic solutions for nonlinear systems*, Presa Universitară Clujană , Cluj-Napoca, 2006.

List of the remaining papers appeared in peer-reviewed journals.

11. A. Buică, J. Giné, J. Llibre, A second order analysis of the periodic solutions for nonlinear periodic differential systems with a small parameter, *Physica D* 241 (2012) 528-533.
12. A. Buică, I. A. García, Periodic solutions of perturbed symmetric Euler top, *Topol. Methods Nonlinear Anal.* 36 (2010) 91-100.
13. A. Buică, J. Llibre, O. Makarenkov, To Mitropolskii Yu. A. theorem on periodic solutions of systems of nonlinear differential equations with non-differentiable right-hand-sides (Russian), *Dokl. Acad. Nauk.* 421 (2008) 302-304.
14. A. Buică, Contributions to coincidence degree theory of asymptotically homogeneous operators, *Nonlin. Anal.* 68 (2008), 1603-1610.
15. A. Buică, A. Gasull, J. Yang, The third order Melnikov function of a quadratic center under quadratic perturbations, *J. Math. Anal. Appl.* 331 (2007) 443-454.
16. A. Buică, V. A. Ilea, Periodic solutions for mixed functional differential equations, *J. Math. Anal. Appl.* 330 (2007) 576-583.
17. A. Buică, J. Llibre, Limit cycles of a perturbed cubic polynomial differential center, *Chaos, Solitons Fractals* 32 (2007) 1059-1069.
18. J. Appell, A. Buică, Numerical ranges for pairs of operators, duality mappings with gauge function, and spectra of nonlinear operators, *Mediterr. J. Math.* 3 (2006) 1-14.

19. A. Buică, Radu Precup, Note on the abstract generalized quasilinearization method, *Rev. anal. numér. théor. approx.* 35 (2006) 11-15.
20. A. Buică, J. Llibre, Bifurcation of limit cycles from a 4-dimensional center in control systems, *Internat. J. Bifur. Chaos Appl. Sci. Engrg.* 15 (2005) 2653-2662.
21. A. Buică, Quasilinearization method for nonlinear elliptic boundary value problems, *J. Optim. Theory Appl.* 124 (2005) 323-338.
22. A. Buică, Some remarks on monotone iterative technique, *Rev. anal. numér. théor. approx.* 31 (2002) 147-154.
23. A. Buică, Gronwall-type nonlinear integral inequalities, *Mathematica (Cluj)* 44(67) (2002) 19-23.
24. A. Buică, A. Domokos, Nearness, accretivity and the solvability of nonlinear equations, *Numer. Funct. Anal. Optim.* 23 (2002) 477-493.
25. A. Buică, Existence results for evolution equations via monotone iterative techniques, *Dyn. Cont. Discrete Impul. Syst. (A: Math. Anal.)* 9 (2002) 487-499.
26. A. Buică, R. Precup, Abstract generalized quasilinearization method for coincidences, *Nonlinear Stud.* 9 (2002) 371-386.
27. A. Buică, Monotone iterations for the initial value problem, *Seminar on Fixed Point Theory Cluj-Napoca* 3 (2002) 137-148.
28. A. Buică, Quasilinearization for the forced Duffing equation, *Studia Univ. Babeş-Bolyai (Mathematica)* 47 (2002) 21-29.
29. A. Buică, Some properties preserved by weak-nearness, *Semin. Fixed Point Theory Cluj-Napoca* 2 (2001) 65-70.
30. A. Buică, Some remarks on coincidence theory, *Studia Univ. Babeş-Bolyai (Mathematica)* 45 (2000), 39-47.
31. A. Buică, Contributions to coincidence degree theory of some homogeneous operators, *Pure Math. Appl.* 11 (2000) 153-159.
32. A. Buică, Elliptic and parabolic differential inequalities, *Demonstratio Math.* 33 (2000) 783-792.
33. A. Buică, Data dependence theorems on coincidence problems, *Studia Univ. Babeş-Bolyai (Mathematica)* 41 (1996) 33-40.

List of papers appeared in the proceedings of some conferences.

34. A. Buică, I. A. García, S. Maza, Inverse Jacobi multipliers: recent applications in dynamical systems, *Progress and Challenges in Dynamical Systems*, Springer Proceedings in Mathematics & Statistics, 54 (2013), 127-141.
35. A. Buică, I. A. García, S. Maza, Centers in a quadratic system obtained from a scalar third order differential equation, *Differential and Difference Equations with Applications*, Springer Proceedings in Mathematics & Statistics, 47 (2013).
36. A. Buică, Existence of strong solutions of fully nonlinear elliptic equations, *Analysis and optimization of differential systems*, (V. Barbu, I. Lasiecka, D. Tiba and C. Varsan, eds.), Kluwer Acad. Publ. Boston, 2003, 69-77.
37. A. Buică, R. Precup, Monotone Newton-type iterations for nonlinear equations, *Proc. Tiberiu Popoviciu Itinerant Seminar Funct. Eqn. Approx. Convexity* (E. Popoviciu ed.), Cluj-Napoca, 2002, 63-75.
38. A. Buică, Strong surjections and nearness, *Recent trends in nonlinear analysis* (Jürgen Appell, ed.), Progr. Nonlinear Differential Equations Appl. 40 (2000), Birkhäuser, Basel, 55-58.
39. F. Aldea, A. Buică, On Peetre's condition in the coincidence theory. I. Abstract results, *Proc. Itinerant Seminar Tiberiu Popoviciu*, Cluj-Napoca, May 2000, 22-29.
40. F. Aldea, A. Buică, On Peetre's condition in the coincidence theory. II. Relations with other coincidence theorems and applications, *Séminaire de la théorie de la meilleure approximation*, Cluj-Napoca, October 2000, 17-27.

Other papers.

41. A. Buică, Existence and continuous dependence of solutions of some functional-differential equations, *Seminar on Fixed Point Theory*, Preprint 3 (1995), 1-13.
42. A. Buică, On the Cauchy problem for a functional-differential equation, *Seminar on Fixed Point Theory*, Preprint 3 (1993) 17-19.

February 03, 2014

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