

Curriculum Vitae

Adriana BUICĂ (PhD, Associate Professor)

Department of Mathematics, Babeş-Bolyai University,
Kogălniceanu street no. 1, 400084 Cluj-Napoca, Romania.

RESEARCH INTERESTS

- Qualitative Theory of Differential Equations, Dynamical Systems
- Applications of Differential Equations Theory, Biomathematics

STUDIES AND DEGREES

- PhD in Mathematics, Babeş-Bolyai University, 2000
Subject: Coincidence Principles and Applications
PhD Supervisor : Prof. Dr. Ioan A. Rus
Public defense: December 15, 2000
- Faculty of Mathematics and Computer Science, Babeş-Bolyai University, Cluj-Napoca, 1990-1995
- Secondary School Drăgăşani, 1986-1990

ACADEMIC POSITIONS

- Associate Professor (*Conferențiar*), Department of Mathematics, Babeş-Bolyai University (since February 2007)
- Lecturer (*Lector*), Department of Mathematics, Babeş-Bolyai University (January 2002 - January 2007)
- Teaching Assistant (*Preparator*, and *Asistent*), Department of Mathematics, Babeş-Bolyai University (October 1995 - January 2002)

RESEARCH VISITS (longer than 1 month)

- Department of Mathematics, Universitat de Lleida, Spain
3 months: September 2008 - December 2008
Research visit inside the MCYT/FEDER Grant MTM2008-00694
- Department of Mathematics, Universitat de Lleida, Spain
5 months: September 2007 - January 2008
Visiting Professor position (including teaching)
- Department of Mathematics, Universitat Autònoma de Barcelona, Spain
10 months: October 2005 - July 2006
AUF (Agence Universitaire de la Francophonie) grant
- Department of Mathematics, University of Würzburg, Germany
2 months: June–July 2005
DAAD (Deutscher Akademischer Austausch Dienst) grant
- Centre de Recerca Matemàtica, Barcelona, Spain
18 months: March 2003 - August 2004
Ministerio de Education, Cultura y Deporte grant SB2001-0117
- Institut Henri Poincaré, Paris, France
1 month: October 2003
ERCOM (European Research Centres on Mathematics) exchange

SHORT INVITED RESEARCH VISITS

- Universitat de Lleida, Spain (September 2013, October 2012, February 2012, September 2010, February 2010, February 2009)
- Imperial College London, United Kingdom (July 2011)
- Universitat Autònoma de Barcelona, Spain (June 2011, January 2008, February 2007, May 2005, November 2004)
- UNED Madrid, Spain (November 2008)
- Universidad de Granada, Spain (November 2007)

TEACHING ACTIVITY

I have been teaching the following subjects (theory and problems) since 1995:

- Calculus, Ordinary Differential Equations, Dynamical Systems, Sobolev Spaces, Partial Differential Equations, Biomathematics, Fixed Point Theory

MEMBER IN DOCTORAL COMMITTEES

- PhD in Mathematics of Oana Maria Mleşnişte, Universitatea Babeş-Bolyai Cluj-Napoca (Romania), October 2013, with the thesis "Contributions to the Study of the Coincidence Point Problem for Singlevalued and Multivalued Operators"
- PhD in Mathematics of Elisabet Vela, Universidad de Sevilla (Spain), July 2013, with the thesis "Piecewise Linear Differential Systems: Limit Cycles and Analysis of Bifurcations"
- PhD in Mathematics of Cecilia Crăciun, Universitatea Babeş-Bolyai Cluj-Napoca (Romania), October 2010, with the thesis "The Abstract Gronwall Lemma and Applications"
- PhD in Mathematics of Mircea Rus, Universitatea Babeş-Bolyai Cluj-Napoca (Romania), April 2010, with the thesis "The Method of Monotone Iterations for Mixed Monotone Operators"
- PhD in Mathematics of Susanna Maza, Universitat de Lleida (Spain), December 2008, with the thesis "Discrete and Continuous Symmetries in Planar Vector Fields"

MEMBER IN INTERNATIONAL RESEARCH TEAMS

- MICINN/FEDER Grant MTM2011-22877 (Spain) with the project: "Bifurcations, integrability and qualitative properties of families of vector fields"; Director: Prof. Dr. Isaac García
- CIRIT (AGAUR) Grant 2009SGR381 (Spain) with the project: "Qualitative methods in differential equations"; Director: Prof. Dr. Jaume Giné
- MCYT/FEDER Grant MTM2008-00694 (Spain) with the project: "Qualitative methods and integrability in planar differential equations"; Director: Prof. Dr. Jaume Giné

MEMBER IN NATIONAL RESEARCH TEAMS

- Grant BM 159/1999-2001 with the project: “Nonlinear operators and differential equations”; Director: Prof. Dr. Ioan A. Rus
- Grant CNCSIS 261/2000 351/2001 with the project: “Nonlinear boundary value problems and applications”; Director: Prof. Dr. Radu Precup
- Grant ANSTI A09/2001 with the project: “The analysis of some evolutive processes with memory”; Director: Lect. Dr. Andras Domokos
- Grant CNCSIS 345/2004-2006 with the project: “Nonlinear operators and partial differential equations”; Director: Prof. Dr. Radu Precup
- Grant CNCSIS 187/2005-2008 with the project: “Dynamical systems”; Director: Prof. Dr. Adrian Petruşel
- Grant CNCS UEFISCDI, PN-II-ID-PCE-2011-3-0094 with the project: “Operational methods for nonlinear systems and applications”; Director: Prof. Dr. Radu Precup

EDITORIAL WORK

- Managing Editor at Fixed Point Theory
- Referee at various mathematical journals

TALKS IN SEMINARS AND CONFERENCES

- *Periodic solutions of the perturbed symmetric Euler top*, Dynamical Systems Seminar, Universidad de Sevilla, Spain, July 2013.
- *Periodic solutions for periodic systems with a small parameter*, Workshop on slow-fast dynamics: theory, numerics, applications to life and earth sciences, Barcelona, Spain, June 2013.
- *A second order analysis of periodic solutions of nonlinear periodic systems with a small parameter*, New trends in dynamical systems, Salou, Spain, October 2012.

- *A second order analysis of periodic solutions of nonlinear periodic systems with a small parameter*, ICFPTA 2012, Cluj-Napoca, Romania, July 2012.
- *Persistence of equilibria as periodic solutions of forced systems*, EQUADIFF 2011, Loughborough, Great Britain, August 2011.
- *Persistence of equilibria as periodic solutions of forced systems*, Dynamical Systems Seminar, Imperial College London, Great Britain, July 2011.
- *Existence of inverse Jacobi multipliers around Hopf points in R^3* , ICNODEA 2011, Cluj-Napoca, Romania, July 2011.
- *The averaging method and periodic orbits for differential systems*, Ddays, Calatayud, Spain, November 2010.
- *Hopf bifurcation in R^3 and the inverse Jacobi multiplier*, Third symposium on planar vector fields, Universitat de Lleida, Spain, September 2010.
- *Periodic solutions of the perturbed symmetric Euler top*, Singularités des champs de vecteurs du plan. Bifurcations et applications, Centre International de Rencontres Mathématiques, Marseille, France, May 2009.
- *Periodic solutions of the perturbed symmetric Euler top*, Workshop on Resonance Oscillations and Stability of Nonsmooth systems, Imperial College London, United Kingdom, June 2009.
- *El método del promedio y ciclos límite de sistemas planos*, Seminar talk at UNED Madrid, Spain, November 2008.
- *Limit cycles of a quadratic polynomial planar system: the third order Melnikov function*, Mathematical Models in Engineering, Biology and Medicine. Conference on Boundary Value Problems, Santiago de Compostela, Spain, September 2008.
- *An abstract result on the quasilinearization method and its applications*, International Conference Semicentennial "Tiberiu Popoviciu" Institute of Numerical Analysis, Cluj-Napoca, Romania, May 2008.
- *Lyapunov-Schmidt reduction for nonsmooth functions with applications to the bifurcation of periodic solutions in n -dimensional systems*, Seminar talk at Universitat Autònoma de Barcelona, Spain, November 2007.
- *Bifurcation of periodic solutions in n -dimensional systems from an isochronous continuum*, Seminar talk at Universidad de Granada, Spain, November 2007.

- *Sobre el principio del argumento, el grado topológico y el índice de Poincaré-Bendixson*, Seminar talk at Universitat de Lleida, Spain, October 2007.
- *Contributions to coincidence degree theory of asymptotically homogeneous operators*, International Conference on Nonlinear Operators, Differential Equations and Applications, Babeş-Bolyai University, Cluj-Napoca, Romania, July 2007.
- *Stability of periodic solutions obtained via the averaging method for Lipschitz systems*, International Conference on Topological Methods, Differential Equations and Dynamical Systems, Firenze, Italy, June 2007.
- *Periodic solutions for Lipschitz systems with a small parameter*, Seminar talk at Universitat Autònoma de Barcelona, Spain, February 2007.
- *Periodic solutions of nonlinear periodic differential systems with a small parameter*, Seminar talk at Universitat Autònoma de Barcelona, Spain, May 2006.
- *The third order Melnikov function of a quadratic center under quadratic perturbations*, Seminar talk at Universitat Autònoma de Barcelona, Spain, June 2006.
- *The quasilinearization method for nonlinear elliptic equations*, Seminar talk at University of Stuttgart, Germany, July 2005.
- *The quasilinearization method for nonlinear elliptic equations*, Seminar talk at University of Stuttgart, Germany, July 2005.
- *Limit cycles bifurcation from a cubic center perturbed inside n th degree polynomial systems*, Seminar talk at Universitat Autònoma de Barcelona, Spain, May 2005.
- *Averaging methods for finding periodic orbits of differential equations*, International Conference on Nonlinear Operators, Differential Equations and Applications, Babeş-Bolyai University, Cluj-Napoca, Romania, August 2004.
- *Bifurcation of limit cycles from a 4-dimensional center inside control systems*, Nolineal, Toledo, Spain, June 2004.
- *Coincidence theorems and some of their applications*, Seminar talk at Universitat Autònoma de Barcelona, Spain, November 2003.
- *Bifurcation of limit cycles from a 4-dimensional center in control systems*, Seminar talk at Universitat Autònoma de Barcelona, Spain, May 2004.

- *Averaging methods for finding periodic orbits via Brouwer degree*, Recent Trends in Dynamics, Porto, Portugal, July 2003.
- *Gronwall-type inequalities for some problems in coincidence form*, Third International Conference on Applied Mathematics, Baia Mare - Borşa, Romania, October 2002.
- *Quasilinearization for the forced Duffing equation*, Theodor Angheluță Conference, Cluj Napoca - Băișoara, Romania, June 2002.
- *Monotone Newton-type iterations for nonlinear equations*, Tiberiu Popoviciu Itinerant Seminar of Functional Equations, Approximation and Convexity, Cluj-Napoca, Romania, May 2002.
- *On the coincidence degree of homogeneous operators*, 135-th Pannonian Applied Mathematical Meeting, Baia Mare - Borşa, Romania, October 2001.
- *The method of lower and upper solutions and the monotone iterative technique for differential equations*, International Conference on Nonlinear Operators, Differential Equations and Applications, Babeş-Bolyai University, Cluj-Napoca, Romania, September 2001.
- *On Peetre's condition in coincidence theory. II. Relations with other coincidence theorems and applications*, Séminaire de la théorie de la meilleure approximation, convexité et optimisation, Cluj-Napoca, Romania, October 2000.
- *Weak nearness between operators and fully nonlinear elliptic equations*, Seminar talk at University of Würzburg, Germany, October 2000.
- *Existence, uniqueness and comparison results for evolution problems with discontinuous nonlinearities* (Poster), The third European Congress of Mathematics, Barcelona, Spain, July 2000.
- *On Peetre's condition in coincidence theory. I. Abstract results*, Tiberiu Popoviciu Itinerant Seminar of Functional Equations, Approximation and Convexity, Cluj-Napoca, Romania, May 2000.
- *Some properties preserved by nearness and weak-nearness between operators. Applications to PDE*, Seminar on Fixed Point Theory and Applications (International Conference), Cluj-Napoca, Romania, October 1999.
- *Contributions to coincidence degree theory of some homogeneous operators*, The Third Joint Romanian-Hungarian Conference on Modern Applied Mathematics, Visegrad, Hungary, June 1999.

- *Elliptic and parabolic inequalities*, Workshop on Differential Equations and Control, Iași, Romania, May 1999.

- *Old and new Gronwall-type inequalities as consequences of an abstract lemma of Rus* (Poster), 4ème Colloque Franco–Roumain de Mathématiques Appliquées, Metz, France, September 1998.

- *F-coincidence structures*, The Second Joint Romanian-Hungarian Conference on Modern Applied Mathematics, Ilieni, Romania, June 1997.

- *Data dependence theorems on coincidence problems*, The Itinerant Seminar Tiberiu Popoviciu, Cluj-Napoca, Romania, May 1997.

- *Existence and continuous dependence of solutions of some functional-differential equations*, Students Conference, Gödölö, Hungary, April 1995.

January 29, 2014

Adriana Buică