

Education

The University of Memphis - Tennessee

Memphis, Tennessee

- *PhD in Mathematics*

2001 – 2006

– Dissertation: ” *Wentzell Boundary Conditions in the Context of Wave Equations, Sturm-Liouville Operators and Cahn-Hilliard Models*”

– Advisors: Prof. Gisele R. Goldstein and Prof. Jerome A. Goldstein

“Babes–Bolyai” University of Cluj Napoca

Cluj-Napoca, Romania

- *Bachelor of Science in Mathematics*

1996 – 2000

– Thesis: ” *Starlike and Convex Functions in the Unit Disk*”

– Advisor: Acad. Prof. Petru Mocanu

Research Interests

Main

- Nonlinear differential equations, and their large time behavior:
 - Models in Materials Science.
 - Hyperbolic equations.
 - Fluid dynamics: the study of incompressible multiphase flows, Navier-Stokes equations.
 - Attractor’s theory of dissipative systems, perturbation theory, convergence rates to steady states, stability issues.
 - Elliptic boundary value problems.
 - Dynamic boundary conditions for PDE’s.
- Mathematical physics, spectral theory.
- Evolutions equations of complex spatial variables.

Secondary

- Numerical analysis of PDE’s subject to dynamic boundary conditions.
- Almost periodic, almost automorphic functions and their applications to differential equations.
- Fuzzy differential equations and their applications.

Colloquium/Invited Lectures

1. Indiana University-Purdue University, Indianapolis, "Diffuse-interface models for two-phase flows of incompressible fluids", March 29th, 2011.
2. University of Nevada, Las Vegas, "Diffuse-interface models for two-phase flows of incompressible fluids", January 26th, 2011.
3. University of Southern California, Los Angeles, "Longtime behavior of diffuse interface models for incompressible two-phase flows", January 27th, 2010.
4. University of California, Irvine, "Longtime behavior of diffuse interface models for incompressible two-phase flows", January 26th, 2010.
5. Workshop "Mathematical Models and Analytical Problems for Special Materials", July 9-11th, 2009, Brescia, Italy.
6. Direct, Inverse and Control Problems for PDE's, DICOP 08, Il Palazzone, Cortona (Italy), "Long term behavior of binary mixture fluid flows", September 22 - 26, 2008.
7. Politecnico di Milano, Department of Mathematics "Francesco Brioschi", "Robust exponential attractors for singularly perturbed phase-field equations with dynamic boundary conditions", Milano, Italy, July 9th, 2008.
8. University of Bologna, Department of Mathematics, "Asymptotic behavior for nonisothermal Cahn-Hilliard equations with dynamic boundary conditions", Bologna, Italy, July 15th, 2008.
9. Georgetown University, "Dynamic boundary conditions for phase field type equations", Georgetown / Washington DC, April 13th, 2007.
10. Johns Hopkins University, "Exponential attractors for singularly perturbed phase field equations with dynamic boundary conditions", Baltimore, February 10th, 2007.
11. Towson University, "Dynamic boundary conditions for phase field type equations", Towson, March 14th, 2007.
12. University of Memphis, "The Cahn-Hilliard equation as a singular perturbation of a system of phase field equations", Memphis, March 22th, 2007.
13. University of Memphis, "Exponential attractors to a conserved Cahn-Hilliard equation with a perturbation parameter in the boundary conditions", Memphis, November 22th, 2006.
14. University of Maryland, Baltimore, "Exponential attractors to the Allen-Cahn equation with dynamic boundary conditions", Baltimore, November 20th, 2006.
15. University of Delaware, "Exponential attractors to the Allen-Cahn equation with dynamic boundary conditions", Newark, October 31st, 2006.
16. Morgan State University, Baltimore, "The Allen-Cahn equation with non-constant temperature: an introduction", Baltimore, September 2006.
17. University of Texas, Pan American, "Wentzell boundary conditions in the context of heat and wave equations and some Cahn-Hilliard models", Edinburg, March. 2006.

18. University of Arkansas at Fayetteville, "The Sturm-Liouville operator with general boundary conditions", Fayetteville , Feb. 2005.
19. University of Memphis, "Oscillatory Boundary Conditions for Acoustic Wave Equations", October 2002.

Conference Lectures

1. Evolution Equations and Mathematical Models in Applied Sciences, "Mathematical study of two-phase flows of viscous and incompressible fluids", Taranto, Italy, June 29th, 2009.
2. The 8th Mississippi State - UAB Conference on Differential Equations & Computational Simulations, "Turbulence in two-phase flows of viscous incompressible fluids", May 7-9, 2009, Starkville, MS, USA.
3. 7th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, invited in SS13, "Uniform attractors for non-isothermal Cahn-Hilliard equations with dynamic boundary conditions", May 18 - 21, 2008, The University of Texas at Arlington, Arlington, TX, USA.
4. International Conference on Interdisciplinary Mathematical and Statistical Techniques - IMST 2008 / FIM XVI, "Non-isothermal Allen-Cahn equations with dynamic boundary conditions", May 16-18, 2008, University of Memphis, Memphis, TN, USA.
5. The 31st annual SIAM Southeastern-Atlantic Section Conference, "Exponential and global attractors to non-isothermal Cahn-Hilliard equations with dynamic boundary conditions", Memphis, 4-5 May 2007.
6. Fluids and Waves, Recent trends in analysis, "Exponential attractors for a Cahn-Hilliard model in bounded domains with permeable walls", University of Memphis, May 2006.
7. The 26th Southeastern-Atlantic Regional Conference on Differential Equations, University of North Carolina at Greensboro, "Exponential attractors to phase field equations with dynamic boundary conditions", October 27-28th, 2006.
8. The National AMS meeting in New Orleans, "Dynamic boundary conditions for two coupled evolutions equations", January 2007.
9. DE Weekend Conference, University of Memphis, "Exponential attractors for a Cahn-Hilliard model with Wentzell boundary conditions", April 2006.
10. The National AMS meeting in San Antonio. Chaired the session on "Partial differential equations" and gave talk on "The non-autonomous wave equation with Wentzell boundary conditions", January 2006.
11. The UAB International Conference on differential equations and mathematical physics, "On the Cahn Hilliard equation with Wentzell boundary conditions", March 2005.
12. Differential Equations Weekend Conference, University of Memphis, "Oscillatory boundary conditions for acoustic wave equations", Nov. 2002.
13. Differential Equations Weekend, Mississippi State University, Starkville, "The Sturm-Liouville operator with general boundary conditions", Feb. 2003.

Appointments

- **Florida International University** Miami, Florida
• *Assistant Professor* 2011 – present
- **University of Missouri** Columbia, Missouri
• *Postdoctoral Research Fellow* 2007 – 2011
- **Morgan State University** Baltimore, Maryland
• *Visiting Assistant Professor* 2006 – 2007
- **The University of Memphis** Memphis, Tennessee
• *Teaching/Graduate Assistant* 2001 – 2006
• *Research Assistant* 2004, 2005
- **“Babes–Bolyai” University of Cluj Napoca** Cluj-Napoca, Romania
• *Teaching Assistant* 1999-2000

Visiting Experience

- Visiting scholar, Dipartimento di Matematica, Universita di Bologna, July 15 – July 21, 2008.
- Visiting scholar, Dipartimento di Matematica ”Francesco Brioschi”, Politecnico di Milano, July 7 – July 14, 2008.
- Visiting scholar, Department of Mathematics, University of Puerto Rico, March 25 – April 9, 2008.

Teaching Experience

- **Undergraduate Courses:** Calculus I, II and III, Business Calculus, Trigonometry, College Algebra, Linear Algebra, Differential Equations, Finite Mathematics.
- **Graduate Course:** Dissipative Dynamical Systems and their Long Term Behavior (Spring 2009).
- Various lectures in PDE seminars at University of Memphis (2002-2006), Morgan St. University (2006-2007), John Hopkings University (2006-2007) and University of Missouri (2007-2011).
- Tutorial assistance of undergraduates in all fields of Mathematics, served as a tutor in the Math Learning Center of the Math. Dept. at the University of Memphis, Spring 2001-Fall 2005.
- **Certificate of Teachers Training**, “Babes-Bolyai” University of Cluj-Napoca, Romania, 2000 (based on the courses: educational psychology, pedagogy, teaching methodology, pedagogical practice).

Professional Service

- Colloquium and Graduate/research committees, Morgan State University, Baltimore.
- Travel Awards Committee, University of Missouri Postdoctoral Association (MUPA).
- Reviewer for Mathematical Reviews (2004-2011).
- Refereed for Commentationes Mathematicae, International Journal of Evolutions Equations, International Journal of Applied Mathematical Sciences, Computers and Mathematics with Applications, Asymptotic Analysis, Dynamics of Partial Differential Equations, Nonlinear Analysis: Theory, Methods & Applications, Discrete and Continuous Dynamical Systems, Mathematische Nachrichten, Applied Mathematical Modelling.

Awards/Honors

- *Postdoc Travel Award*, University of Missouri, Columbia, Spring 2008, 2009.
- *The Morton Dissertation Award* – honor/award for outstanding dissertation, University of Memphis, April 2006.
- *The Donovan Award*, University of Memphis, January 2006.

Professional Affiliations

- American Mathematical Society.
- Mathematical Reviews.

Reference Writers

- Jerome A. Goldstein, Prof., University of Memphis, Department of Mathematical Sciences, Memphis, TN, 38152, jgoldste@memphis.edu, (901)678 – 2484.
- Gisele R. Goldstein, Prof., University of Memphis, Department of Mathematical Sciences, Memphis, TN, 38152, ggoldste@memphis.edu, (901)678 – 2513.
- Yuri Latushkin, Prof., University of Missouri, Mathematics Department, Columbia, MO, 65211, *latushkiny@missouri.edu*, (573)882 – 8275.
- Carmen Chicone, Prof., University of Missouri, Mathematics Department, Columbia, MO, 65211, *chiconec@missouri.edu*, (573)882 – 6331.
- Fritz Gesztesy, Prof., University of Missouri, Mathematics Department, Columbia, MO, 65211, *gesztesyf@missouri.edu*, (573)882 – 4386.
- Maurizio Grasselli, Prof., Dipartimento di Matematica "F.Brioschi" Politecnico di Milano, I-20133 Milano, Italy, *maurizio.grasselli@polimi.it*.
- Alain Miranville, Prof., Laboratoire de Mathématiques et Applications, Université de Poitiers, Boulevard Marie et Pierre Curie-Téléport2, 86962 Chasseneuil Futuroscope Cedex, France, *Alain.Miranville@math.univ – poitiers.fr*.
- Constantin Corduneanu, Prof. Emeritus, University of Texas at Arlington, Department of Mathematics, Arlington, TX 76019, *concord@uta.edu*, (817)272 – 5765.

Publications

Book Chapters

1. Gal, Ciprian G., Coclite, G.M., Favini, A., Goldstein, G.R., Goldstein, J.A., Obrecht, E., Romanelli, S., The role of Wentzell boundary conditions in linear and nonlinear analysis. In: S. SIVASUNDARAN. *Advances in Nonlinear Analysis: Theory, Methods and Applications*. vol. 3, p. 279-292, Cambridge, Cambridge Scientific Publishers Ltd., ISBN/ISSN: 1-904868-68-2.

Journal Publications

1. Cavaterra, C., Gal, Ciprian G., Grasselli, M., Cahn–Hilliard equations with memory and dynamic boundary conditions, *Asymptotic Analysis* 71 (2011), 123–162.
2. Gal, Ciprian G., Sharp estimates for the global attractor of scalar reaction-diffusion equations with a Wentzell boundary condition, *J. Nonlinear Science* (2011), doi 10.1007/s00332-011-9109-y.
3. Gal, Ciprian G., Grasselli, M., Instability of two-phase flows: A lower bound on the dimension of the global attractor of the Cahn–Hilliard–Navier–Stokes system, *Physica D* 240 (2011), 629–635.
4. Gal, Ciprian G., Grasselli, M., Trajectory attractors for binary fluid mixtures in 3D, *Chin. Ann. Math. ser. B* 31 (2010), 1–24.
5. Gal, Ciprian G., Gal, Sorin G., Goldstein, Jerome A., Higher-order heat and Laplace-type equations with real time variable and complex spatial variable, *Complex Var. Elliptic Equ.* 55 (2010), 357–373.
6. Gal, Ciprian G., Grasselli, M., Longtime behavior for a model of homogeneous incompressible two-phase flows, *Discrete Contin. Dyn. Syst.* 28 (2010), 1-39.
7. Gal, Ciprian G., Grasselli, M., Asymptotic behavior of a Cahn-Hilliard-Navier-Stokes system in 2D, *Ann. de l’Institut Henri Poincaré Analyse Non Linéaire* 27 (2010), 401–436.
8. Gal, Ciprian G., Gal, Sorin G., Goldstein, Jerome A., Higher order heat and Laplace type equations with real time variable and complex spatial variable, *Complex Variables Elliptic Equations* 55 (2010), 357–373.
9. Gal, Ciprian G., Cavaterra, C., Grasselli, M., Miranville, A., Phase-field systems with nonlinear coupling and dynamic boundary conditions, *Nonlinear Analysis* 72 (2010), 2375-2399.
10. Gal, Ciprian G., Warma, M., Well-posedness and long term behavior of quasilinear parabolic equations with nonlinear dynamic boundary conditions, *Differential and Integral Equations* 23 (2010), 327-358.
11. Gal, Ciprian G.; Miranville, Alain, Uniform global attractors for non-isothermal viscous and non-viscous Cahn-Hilliard equations with dynamic boundary conditions, *Nonlinear Anal. Real World Appl.* 10 (2009), no. 3, 1738–1766.

12. Gal, Ciprian G.; Miranville, Alain, Robust exponential attractors and convergence to equilibria for non-isothermal Cahn-Hilliard equations with dynamic boundary conditions, *Discrete Contin. Dyn. Syst. Ser. S* 2 (2009), no. 1, 113–147.
13. Gal, Ciprian G.; Grasselli, Maurizio, On the asymptotic behavior of the Caginalp system with dynamic boundary conditions, *Commun. Pure Appl. Anal.* 8 (2009), no. 2, 689–710.
14. Gal, Ciprian G.; Grasselli, Maurizio; Miranville, Alain, Nonisothermal Allen-Cahn equations with coupled dynamic boundary conditions, in “Nonlinear phenomena with energy dissipation: mathematical analysis, modeling and simulation” (P. Colli, A. Damlamian, N. Kenmochi, M. Mimura and J. Sprekels, Eds.), pp.117-139, *Gakuto Int. Ser. Math. Sci. Appl.* 29, Gakkotosho, Tokyo 2009.
15. Gal, Ciprian G, Semilinear abstract differential equations with deviated argument, *Trends in evolution equation research*, 147–152, *Nova Sci. Publ.*, New York, 2008.
16. Gal, Ciprian G.; Grasselli, Maurizio; Miranville, Alain, Robust exponential attractors for singularly perturbed phase-field equations with dynamic boundary conditions, *NoDEA Nonlinear Differential Equations Appl.* 15 (2008), no. 4-5, 535–556.
17. Gal, Ciprian G.; Wu, Hao, Asymptotic behavior of a Cahn-Hilliard equation with Wentzell boundary conditions and mass conservation, *Discrete Contin. Dyn. Syst.* 22 (2008), no. 4, 1041–1063.
18. Gal, Ciprian G.; Grasselli, Maurizio, The non-isothermal Allen-Cahn equation with dynamic boundary conditions, *Discrete Contin. Dyn. Syst.* 22 (2008), no. 4, 1009–1040.
19. Gal, Ciprian G.; Gal, Sorin G.; Goldstein, Jerome A., Evolution equations with real time variable and complex spatial variables, *Complex Var. Elliptic Equ.* 53 (2008), no. 8, 753–774.
20. Gal, Ciprian G.; Gal, Nadia J., A spectral approach to ill-posed problems for wave equations, *Ann. Mat. Pura Appl.* 187 (2008), no. 4, 705–717.
21. Gal, Ciprian G., Robust exponential attractors for a conserved Cahn-Hilliard model with singularly perturbed boundary conditions, *Commun. Pure Appl. Anal.* 7 (2008), no. 4, 819–836.
22. Gal, Ciprian G., Semilinear abstract differential equations with deviated argument, *Int. J. Evol. Equ.* 2 (2008), no. 4, 381–386.
23. Gal, Ciprian G., Well-posedness and long time behavior of the non-isothermal viscous Cahn-Hilliard equation with dynamic boundary conditions, *Dyn. Partial Differ. Equ.* 5 (2008), no. 1, 39–67.
24. Gal, Ciprian G.; Gal, Sorin G.; N’Guérékata, Gaston M., Almost automorphic functions with values in \mathbb{R} -Fréchet spaces, *Electron. J. Differential Equations* 2008, No. 21, 18 pp. (electronic).
25. Gal, Ciprian G., Global well-posedness for the non-isothermal Cahn-Hilliard equation with dynamic boundary conditions, *Adv. Differential Equations* 12 (2007), no. 11, 1241–1274.

26. Gal, Ciprian G.; Gal, Sorin G.; N'Guérékata, Gaston M., Almost automorphic solutions to some semilinear fuzzy differential equations, Trends in African diaspora mathematics research, 23–35, Nova Sci. Publ., Huntington, NY, 2007.
27. Gal, Ciprian G., Nonlinear abstract differential equations with deviated argument, J. Math. Anal. Appl. 333 (2007), no. 2, 971–983.
28. Gal, Ciprian G., Exponential attractors for a Cahn-Hilliard model in bounded domains with permeable walls, Electron. J. Differential Equations 2006, No. 143, 23 pp. (electronic).
29. Gal, Ciprian G., A Cahn-Hilliard model in bounded domains with permeable walls, Math. Methods Appl. Sci. 29 (2006), no. 17, 2009–2036.
30. Gal, Ciprian G., Almost automorphic mild solutions to some semilinear abstract differential equations with deviated argument in Fréchet spaces, Electron. J. Qual. Theory Differ. Equ. 2006, No. 16, 8 pp. (electronic).
31. Gal, Ciprian G., Almost automorphic mild solutions to some semi-linear abstract differential equations with deviated argument, J. Integral Equations Appl. 17 (2005), no. 4, 391–396.
32. Gal, Ciprian G.; Gal, Sorin G., Laplace, Fourier and Mellin integral transforms of dual complex and of hyperbolic complex variables, An. Univ. Oradea Fasc. Mat. 12 (2005), 101–115.
33. Gal, Ciprian G.; Gal, Sorin G.; N'Guérékata, Gaston M., Almost automorphic functions in Fréchet spaces and applications to differential equations, Semigroup Forum 71 (2005), no. 2, 201–230.
34. Gal, Ciprian G., Sturm-Liouville operator with general boundary conditions, Electron. J. Differential Equations 2005, No. 120, 17 pp. (electronic).
35. Gal, Ciprian G.; Gal, Sorin G., Semigroups of operators on spaces of fuzzy-number-valued functions with applications to fuzzy differential equations, J. Fuzzy Math. 13 (2005), no. 3, 647–682.
36. Favini, Angelo; Gal, Ciprian G.; Ruiz Goldstein, Gisèle; Goldstein, Jerome A.; Romanelli, Silvia, The non-autonomous wave equation with general Wentzell boundary conditions, Proc. Roy. Soc. Edinburgh Sect. A 135 (2005), no. 2, 317–329.
37. Gal, Ciprian G., On a nonlinear variant of the beam equation with Wentzell boundary conditions, Differential Integral Equations 18 (2005), no. 1, 71–81.
38. Gal, Ciprian G., Gal, Sorin G., Shape-preserving multivariate polynomial approximation in $C[-1,1]^m$, Int. J. Math. Math. Sci. no. 5-8 (2004), 325–333.
39. Gal, Sorin G.; Gal, Ciprian G., Zeta functions and the Riemann's hypothesis in some hypercomplex variables, An. Univ. Oradea Fasc. Mat. 10 (2003), 23–40.
40. Gal, Ciprian G.; Goldstein, Gisèle Ruiz; Goldstein, Jerome A., Oscillatory boundary conditions for acoustic wave equations, Dedicated to Philippe Bénilan, J. Evol. Equ. 3 (2003), no. 4, 623–635.