

Loredana Bălilescu

Permanent position:

University of Pitești
Faculty of Sciences, Sport and Computer Science
Department of Mathematics and Computer Science
110040 Pitești, Str. Târgu din Vale, Nr. 1
ROMANIA

Office: +40 348 453 252

Fax: +40 348 453 123

Email: loredana.balilescu@upit.ro

Homepage:

<http://www.dim.uchile.cl/~smaranda>

and

Actual visiting position:

Federal University of Santa Catarina
Department of Mathematics
Campus Universitário Trindade
CEP 88.040-900, Florianópolis-SC
BRASIL

Office: +55 48 3024 0767

Email: smaranda@dim.uchile.cl

Previous Name: Loredana Smaranda

Birth: August 30, 1975, Pitești, Argeș, Romania

Citizenship: Romanian, Chilean Permanent Residence

Languages: English (fluent), French (conversational), Portuguese (fluent), Romanian (native), Spanish (fluent with "Diploma de Español como Lengua Extranjera", the highest level C2-Maestría)

Education

- 2006 **Ph.D. in Applied Mathematics, University of Pitești, Romania**
Title: Applications on homogenization theory. (in romanian)
Advisor: Dr. Horia ENE
- 2006 **Ph.D. in Engineering Science-Mathematical Modelling, University of Chile, Chile**
Title: Bloch-Fourier method in homogenization and convergence analysis of the ALE method. (in spanish)
Advisor: Dr. Carlos CONCA
- 1998 **B.S. in Mathematics and Computer Science, University of Pitești, Romania**
Title: Differential calculus on Banach spaces: application to Newton-Kantorovici method. (in romanian)
Advisor: Dr. Ion CHIȚESCU - University of Bucharest

Academic Experience

Employment

October 2014 –the present	Visiting Professor Federal University of Santa Catarina, Department of Mathematics, Brasil
October 2011 –the present	Associate Professor University of Pitești, Department of Mathematics, Romania
July 2009 –October 2014	Researcher University of Pitești, Department of Mathematics, Romania
October 2008 –September 2011	Lecturer University of Pitești, Department of Mathematics, Romania
June 2006 –January 2009	Postdoctoral Researcher University of Chile, Department of Mathematical Engineering, Chile
August 2004 –December 2004	Teaching Assistant University of Chile, Department of Mathematical Engineering, Chile
March 1999 –September 2008	Assistant Professor University of Pitești, Department of Mathematics, Romania

Short-term visiting

October 2015	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
January 2015	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
June–July 2014	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
November –December 2013	Visiting Researcher University Paris 13, The Laboratory of Science of Processes and Materials, France
August –September 2013	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
November 2012	Visiting Researcher Federal University of Santa Catarina, Department of Mathematics, Brasil
October –November 2012	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
September –December 2011	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
June 2011	Visiting Researcher University Henri Poincaré Nancy 1, Élie Cartan Institute, France

May–June 2011	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
May 2010	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
October 2009	Visiting Researcher Federal University of Santa Catarina, Department of Mathematics, Brasil
September –November 2009	Visiting Researcher University of Chile, Department of Mathematical Engineering, Chile
June 2007	Visiting Researcher University Henri Poincaré Nancy 1, Élie Cartan Institute, France

Research Interests

General	Partial differential equations
Specialized	Homogenization theory
Specialized	Bloch waves
Specialized	Existence and uniqueness of solutions
General	Numerical analysis
Specialized	Fluid-structure interaction theory

Publications

ISI Papers

- [1] **L. Bălilescu**, J. San Martín, J.-F. Scheid, *Convergence of a Lagrange–Galerkin method for the equations modelling of fish-like swimming*, work in progress (2017).
- [2] **L. Bălilescu**, J. San Martín, T. Takahashi, *Fluid–rigid structure interaction system with Coulomb’s law*, accepted in SIAM Journal on Mathematical Analysis (2017).
- [3] **L. Bălilescu**, J. San Martín, T. Takahashi, *On the Navier–Stokes equation with Coulomb friction law boundary condition*, Z. Angew. Math. Phys. (2017) 68:3, DOI 10.1007/s00033-016-0744-x [IF 1.213].
- [4] **L. Bălilescu**, C. Conca, T. Gosch, J. San Martín, M. Vanninathan, *Bloch wave spectral analysis in the class of generalized Hashin–Shtrikman micro-structures*, submitted (2016).
- [5] **L. Bălilescu**, C. Conca, T. Gosch, J. San Martín, M. Vanninathan, *Dispersion tensor and its unique minimizer in Hashin–Shtrikman micro-structures*, submitted (2016).
- [6] J. San Martín, J.-F. Scheid, **L. Smaranda**, *The Lagrange–Galerkin method in fluid–structure interaction problems*, Boundary Value Problems 2013:246, doi:10.1186/1687-2770-2013-246 (2013) [IF 0.922].

- [7] J. San Martín, J.-F. Scheid, **L. Smaranda**, *A modified Lagrange–Galerkin method for a fluid–rigid system with discontinuous density*, Numerische Mathematik 122, No. 2 (2012), pp. 341-382 [IF 1.329].
- [8] C. Conca, J. San Martín, **L. Smaranda**, M. Vanninathan, *Burnett coefficients and laminates*, Applicable Analysis 91, Issue 6 (2011), pp. 1155-1176 [IF 0.744].
- [9] J. San Martín, J.-F. Scheid, **L. Smaranda**, *A time discretization scheme of a characteristics method for a fluid–rigid system with discontinuous density*, Comptes Rendus de l’Académie de Sciences de Paris, Série Mathématique 348, No. 15-16 (2010), pp. 935-939 [IF 0.399].
- [10] J. San Martín, **L. Smaranda**, *Asymptotics for eigenvalues of the Laplacian in higher dimensional periodically perforated domains*, Zeitschrift für angewandte Mathematik und Physik 61, No. 3 (2010), pp. 401-424 [IF 1.290].
- [11] C. Conca, J. San Martín, **L. Smaranda**, M. Vanninathan, *Optimal bounds on Burnett coefficients in one–dimensional periodic media*, Mathematical Models and Methods in Applied Sciences 19, No. 9 (2009), pp. 1743-1764 [IF 2.095].
- [12] D. Dupuy, R. Orive, **L. Smaranda**, *Bloch waves homogenization of a Dirichlet problem in a periodically perforated domain*, Asymptotic Analysis 61, No. 3-4 (2009), pp. 229-250 [IF 0.777].
- [13] J. San Martín, **L. Smaranda**, T. Takahashi, *Convergence of a finite element/ALE method for the Stokes equations in a domain depending on time*, Journal of Computational and Applied Mathematics 230, Issue 2 (2009), pp. 521-545 [IF 1.292].
- [14] C. Conca, J. San Martín, **L. Smaranda**, M. Vanninathan *On Burnett coefficients in periodic media in low contrast regime*, Journal of Mathematical Physics 49 (2008), pp. 053514(23) [IF 1.085].
- [15] J. Ortega, J. San Martín, **L. Smaranda**, *On the homogenization of a non–homogeneous Neumann problem via Bloch wave method*, Zeitschrift für angewandte Mathematik und Physik 58, No. 6 (2007), pp. 969–993 [IF 1.139].
- [16] J. Ortega, J. San Martín, **L. Smaranda**, *Bloch wave homogenization in a medium perforated by critical holes*, Comptes Rendus Mécanique Acad. Sci. Paris 335, No. 2 (2007), pp. 75–80 [IF 0.538].

Books and Chapters books

- [1] C. Conca, J. San Martín, **L. Smaranda**, M. Vanninathan, *Higher Order Macro Coefficients in Periodic Homogenization*, Journal of Physics: Conference Series, Vol. 319, 012020, 2011, DOI:10.1088/1742-6596/319/1/0120202011.
- [2] J. San Martín, J.-F. Scheid, **L. Smaranda**, *Convergence of a discretization scheme based on characteristics method for a fluid–rigid system*, Integral Methods in Science and Engineering, Computational and Analytic Aspects, chapter 31, Birkhauser-Boston, 2011, ISBN 978-0-8176-8237-8.
- [3] **L. Smaranda**, *Bloch waves in homogenization theory* (in romanian), Romanian Academy Publishing House, Bucharest, 2010, ISBN 978-973-27-1955-8.

- [4] C. Conca, J. San Martín, **L. Smaranda**, M. Vanninathan, *On Burnett coefficients in periodic media with two-phases*, Integral Methods in Science and Engineering, Volume 1: Analytic Methods, pp. 123-133, Birkhauser-Boston, 2010, ISBN 978-0-8176-4898-5.
- [5] J. San Martín, **L. Smaranda**, *On Bloch waves homogenization in periodically perforated media*, Proceedings of the 6th Congress of Romanian Mathematicians, Romanian Academy, vol. 1 (2009), pp. 533-544.

Conferences, Seminars/Colloquium, Summer Schools

Plenary/Invited talks

- December 12, 2014 *Burnett coefficients and laminates*, Conca60 Congress, Basque Center for Applied Mathematics, Bilbao, Spain.
- August 29, 2014 *Burnett coefficients and laminates*, Special Session "Mécanique", the "12e Colloque Franco-Roumain de Mathématiques Appliquées", University of Lyon, Lyon, France.
- July 22, 2014 *Burnett coefficients and laminates*, Minisymposium "Asymptotic analysis: homogenization and thin structures" at "The thirteenth International Conference on Integral Methods in Science and Engineering", Karlsruhe Institute of Technology, Karlsruhe, Germany.
- August 9, 2013 *Convergence of the Lagrange-Galerkin method for fluid-structure interaction problems*, Special Session "PDE and Incompressible Fluid Flow", the Mathematical Congress of the Americas, Guanajuato, Mexico.
- June 27, 2013 *On numerical discretization for the motion of a self-propelled deformable structure in a viscous incompressible fluid*, AMS Special Session on "Mathematical Models in Materials Science and Engineering", the Joint International Meeting of the AMS and the Romanian Mathematical Society, Alba Iulia, Romania.
- May 10, 2013 *Numerical analysis in fluid-structure interaction problems*, Workshop for Young Researchers in Mathematics, Ovidius University of Constanța, Constanța, Romania.
- August 25, 2012 *Convergence of the Lagrange-Galerkin method for the equations modelling of fish-like swimming*, Special Session "Modèles mathématiques et numériques en mécanique des solides", the 11th French-Romanian Colloquium in Applied Mathematics, Bucharest, Romania.
- November 26, 2010 *Bounds on Burnett coefficient in periodic media*, Workshop on Partial Differential Equations, "Simion Stoilow" Institute of Mathematics of the Romanian Academy, Bucharest, Romania.
- August 30, 2010 *A modified Lagrange-Galerkin method for a fluid-rigid system with discontinuous density*, Session "Analyse, contrôle et approche numérique en mécanique des solides", the 10th French-Romanian Colloquium in Applied Mathematics, Poitiers, France.

- August 29, 2010 | *Bounds on dispersion coefficient in periodic media*, Session "Multiscale problems", the 10th French-Romanian Colloquium in Applied Mathematics, Poitiers, France.
- August 15, 2010 | *Bounds on dispersion tensor in periodic media*, ICM Satellite Conference on PDE and Related Topics, Bangalore, India.
- August 29, 2008 | *On Burnett coefficients in periodic media*, Mini Symposium Asymptotic Analysis, The 9th French-Romanian Colloquium in Applied Mathematics, Braşov, Romania.
- July 9, 2008 | *On Burnett coefficients in periodic media of two-phases*, The Tenth International Conference on Integral Methods in Science and Engineering, Santander, Spain.
- December 9, 2007 | *On Bloch waves homogenization in periodically perforated domains*, Fourth Pacific Rim Conference on Mathematics, City University of Hong Kong, Hong Kong.
- September 7, 2007 | *Homogeneización usando ondas de Bloch*, Puerto Matemático III, Valparaíso, Chile.

Seminar/Colloquium talks

- September 27, 2013 | *Convergence of the Lagrange-Galerkin method for fluid-structure interaction problems*, to Weekly Scientific Seminar "Caleta Numérica", Mathematical Institute, Catholic University of Valparaíso, Chile.
- November 6, 2012 | *Convergence of the Lagrange-Galerkin method for fluid-structure interaction problems*, Scientific Seminar in Department of Mathematics of Federal University of Santa Catarina, Florianopolis, Brasil.
- October 19, 2009 | *Optimal bounds on dispersion coefficient in periodic media*, Scientific Seminar in Department of Mathematics of Federal University of Santa Catarina, Florianopolis, Brasil.
- November 19, 2008 | *On Burnett coefficients in periodic media*, Colloquium Series in Department of Mathematical Engineering, University of Concepción, Concepción, Chile.
- June 1, 2006 | *Convergence and numerical simulations of a finite element/ALE method for the Stokes equations in a domain depending on time*, Mathematical Mechanics Scientific Seminar, Center for Mathematical Modelling, University of Chile, Santiago, Chile.
- December 16, 2004 | *On the homogenization of a non-homogeneous Neumann problem via Bloch wave method*, Mathematical Mechanics Scientific Seminar, Center for Mathematical Modelling, University of Chile, Santiago, Chile.

Contributed talks

- August 16, 2014 | *Numerical analysis for the motion of a self-propelled deformable structure in a fluid*, Research Poster to **International Congress of Mathematicians (ICM)**, Seoul, South Korea.

- August 12, 2014 *Convergence of a discretization scheme for the motion of a self-propelled deformable structure in a fluid*, Research Poster to International Congress of Woman Mathematicians (ICWM), Seoul, South Korea.
- August 27, 2013 *Bounds on dispersion tensor in periodic media*, to International Conference on Applied Mathematics, Modeling and Computational Science, Wilfrid Laurier University, Waterloo, Ontario, Canada.
- August 27, 2013 *Convergence of the Lagrange-Galerkin method for the equations modelling of fish-like swimming*, to International Conference on Applied Mathematics, Modeling and Computational Science, Wilfrid Laurier University, Waterloo, Ontario, Canada.
- December 17, 2012 *Convergence of the Lagrange-Galerkin method for the equations modelling of fish-like swimming*, International Conference on the Theory, Methods and Applications of Nonlinear Equations, Kingsville Texas, USA.
- July 3-4, 2012 *Convergence of a discretization scheme based on characteristics method for a fluid-rigid system with variable density*, Research Poster to 6th European Congress of Mathematics, Krakow, Poland.
- June 30, 2011 *A modified Lagrange-Galerkin method for a fluid-rigid system with discontinuous density*, to The Seventh Congress of Romanian Mathematicians, Section: Mechanics and Applied Mathematics, Braşov, Romania.
- August 20, 2010 *Optimal bounds on dispersion coefficient in periodic media*, **International Congress of Mathematicians 2010**, Hyderabad, India.
- July 12, 2010 *Convergence of a discretization scheme based on characteristics method for a fluid-rigid system with variable density*, The Eleventh International Conference on Integral Methods in Science and Engineering, Brighton, England.
- September 5, 2009 *On Burnett coefficients in periodic media with two-phases*, International Conference on Modern Mathematical Methods in Science and Technology, Poros, Greece.
- July 2, 2007 *Bloch waves homogenization of a Dirichlet problem in a periodically perforated domain*, 6th Congress of Romanian Mathematicians, Bucarest, Romania.
- June 25, 2007 *Bloch waves homogenization of a Dirichlet problem in a periodically perforated domain*, International Workshop on Analysis and Control of Partial Differential Equations, Pont-a-Mousson, France.
- August 29, 2006 *On the homogenization of a non-homogeneous Neumann problem via Bloch waves method*, The 8th French-Romanian Colloquium in Applied Mathematics, Chambéry, France.
- December 7, 2005 *Convergence of a finite element/ALE method for the Stokes equations in a domain depending on time*, International Workshop on Numerical Analysis and Control of Fluid-Structure Interactions, Chillán, Chile.

Attendance

September 2010	Diaspora Conference in Scientific Research and Superior Education in Romania, Workshop on Current Topics in Applied Mathematics, Bucharest, Romania.
September 2005	Workshop on Partial Differential Equations, Optimal Design and Numerics, Benasque Center for Science, Spain.
September 2004	Homogenization and Shape Optimization Summer School, Mathematics Department, University of Lisbon, Portugal.
June 2001	International School and Conference on Homogenization, Università degli Studi di Napoli Federico II, Naples, Italy.
May 2001	Congress Journess de Metz - Ecoulements de Fluides Non Newtoniens. Modélisation aspects théoriques et numériques, University of Metz, France.
October 1998–2001	Conference on Applied and Industrial Mathematics, University of Pitești, Romania.

Grants

Principal investigator

2011–2014	Grant CNCS–UEFISCDI TE, no. 102/05.10.2011 <i>Title:</i> "Higher order macro coefficients in homogenization and numerical analysis of aquatic organisms in viscous fluid". <i>Funding Institution:</i> National Research Council (CNCS), Ministry of Education and Research, Romania. <i>Total amount assigned:</i> 750 000 Romanian Lei (aprox. 230 000 US Dollars). <i>Position in competition:</i> 11 of 37 applicants.
2009–2011	Grant CNCSIS RP-2, no. 6/01.07.2009 <i>Title:</i> "On mathematical modelling of composite materials using Bloch waves and fluid-structure interactions". <i>Funding Institution:</i> The National University Research Council (CNCSIS), Ministry of Education and Research, Romania. <i>Total amount assigned:</i> 510 000 Romanian Lei (aprox. 155 000 US Dollars). <i>Annual score:</i> I have obtained the maximum score of 50 points at each annual monitoring.
2007–2008	Grant FONDECYT Postdoctorado no. 3070029 <i>Title:</i> "Numerical analysis of fluid structure interaction schemes on moving domains and Bloch waves method in periodically perforated domains". <i>Funding Institution:</i> National Commission for Scientific and Technological Research (CONICYT), Government of Chile. <i>Total amount assigned:</i> 27 644 000 Chilean Pesos (aprox. 55 000 US Dollars).

Cooperation

- 2008–2011 **Grant CNMP no. 12099/1.10.2008**
Title: "Techniques for digital content management".
Funding Institution: The National Center for Management Programs (CNMP), Ministry of Education and Research, Romania.
- 2007–2009 **Grant ECOS-CONICYT no. C07E05**
Title: "Analysis and control of fluid structure interactions".
Institutions: University of Chile, Chile and Élie Cartan Mathematics Institute, Henri Poincaré University, Nancy 1, France.
- 2006–2007 **Grant CNCSIS no. 1059/2006**
Title: "Mathematical models for the asymptotic study of nonhomogeneous media".
Funding Institution: The National University Research Council (CNCSIS), Ministry of Education and Research, Romania.
- 2004–2006 **Grant ECOS-CONICYT no. C04E07**
Title: "Homogenization and asymptotic representation formulas".
Institutions: University of Chile, Chile and Centre of Applied Mathematics, École Polytechnique, France.
- 2001–2002 **Grant INFOSOC no. 26/26.10.2001**
Title: "The analysis, organization and improvement in the function of computer networks connected to the Internet".
Funding Institution: Ministry of Education and Research, Romania.

Honors, Awards & Fellowships

- August 2014 **TOGETHER 2014 travel grant** to participate at ICM and ICWM 2014 Seoul, South Korea.
- July 2012 **The Best Research Poster Award**
6th European Congress of Mathematics, Krakow, Poland.
- December 2006 **Doctoral Medal**
University of Chile, Chile.
- June
–December 2006 **Postdoctoral Fellowship**
Center for Mathematical Modelling, University of Chile, Chile.
- September 2005 **MECESUP Fellowship** to participate at workshop "Partial Differential Equations, Optimal Design and Numerics"
Benasque Center for Science, Spain.
- July
–September 2005 **INRIA Fellowship**
Élie Cartan Institute, Henri Poincaré University, Nancy 1, France.

September 2004	MECESUP Fellowship to participate at "Homogenization and Shape Optimization Summer School" University of Lisbon, Portugal.
April 2002 –April 2006	Ph.D. Scholarship Center for Mathematical Modelling, University of Chile, Chile.
April–June 2001	Socrates–Erasmus Fellowship Laboratoire de Mathématiques et Applications de Metz, University of Metz, France.
January 2001 –January 2005	Ph.D. Scholarship Ministry of Education and Research, Romania.
October 1994 –July 1998	Romanian Honor Scholarship Ministry of Education and Research, Romania.

Teaching experience

Federal University of Santa Catarina, Brasil

2017	Topics in Homogenization Theory (for Postgraduate Degree in Pure and Applied Mathematics). Seminars I and II (for Degree in Mathematics).
2016	Calculus A (for Degree in Mechanical Engineering). Calculus B (for Degree in Civil Engineering).
2015	Calculus B (for Degree in Mechanical Engineering and Civil Engineering).
2014	Calculus D (for Degree in Mechanical Engineering). Calculus C (for Degree in Oceanography).

University of Pitești, Romania

2013–2014	Applied Mathematics (for Master Degree in Applied Mathematics). Differential Geometry (for Degree in Mathematics). Numerical analysis in fluid structure interaction problems (for Master Degree in Automotive Engineering for a Sustainable Mobility) – teaching in English. Project management (for Degree in Computer Science). Systems of differential equations with applications in economy (for Master Degree in Modeling, design and management software systems).
2012–2013	Applied Mathematics (for Master Degree in Applied Mathematics). Differential Geometry (for Degree in Mathematics). Numerical analysis in fluid structure interaction problems (for Master Degree in Automotive Engineering for a Sustainable Mobility) – teaching in English.

- 2011–2012 Homogenization Theory (for Master Degree in Mathematics).
Numerical Methods for PDE (for Master Degree in Mathematics).
- 2010–2011 Homogenization Theory (for Master Degree in Mathematics).
Differential Geometry (for Degree in Mathematics).
Applied Mathematics for Engineers (for Automotive Engineering Degree).
- 2009–2010 Differential Geometry (for Degree in Mathematics).
Teaching assistant: Calculus, Multivariable calculus, Linear Algebra, Mathematics in Biology.
- 1998–2002 Teaching assistant: Calculus, Multivariable calculus, Complex Analysis, Applied Mathematics for Engineers.

University of Chile, Chile

- 2004 Teaching assistant: Calculus I.

Supervision of students

University of Pitești, Romania

- 2016–2018 Scientific co-advisor for the following graduate student:
Juan Carlos TORRES ESPINOZA Ph.D. in Pure and Applied Mathematics.
- 2016–2017 Scientific advisor for the following graduate student:
Sandra DUMITRESCU Master Degree in Mathematics.
- 2014–2015 Scientific advisor for the following graduate student:
Sandra DUMITRESCU Degree in Mathematics.
- 2013–2014 Scientific advisor for the following graduate student:
Florina CIOBANU Master Degree in Mathematics.
- 2013 Referee of Ph.D. thesis for the following graduate students:
Marius MACARIE "Integral operators on spaces of univalent functions".
Laura STANCIU "Study of some classes of analytic functions with integral operators".
Irina DORCA "Study of properties for special classes of univalent functions".

- 2011–2012 Scientific advisor for the following graduate students:
- Florina CIOBANU Degree in Mathematics.
 - Alina ANGELESCU Master Degree in Applied Mathematics.
 - Alina CATINCA Master Degree in Applied Mathematics.
 - Maria POPA Master Degree in Applied Mathematics.
- 2011–2012 Scientific advisor for the following secondary school teacher:
- Luciana DOINARU - she got the first degree category to teach.
- 2010–2011 Scientific advisor for the following graduate students:
- Andreea VOICU Degree in Mathematics.
 - Estera SIMA Master Degree in Applied Mathematics.
 - Iuliana TOMA Master Degree in Applied Mathematics.
- 2010–2011 Scientific advisor for the following secondary school teacher:
- Diana TĂBÎRCĂ (VĂCARU) - she got the first degree category to teach.