

CURRICULUM VITAE

IGNAT, Ioan Liviu

Birthday: 17.06.1978

Phone: (+40) 722 67 11 33

E-mail: liviu.ignat@gmail.com

1. Education

Ph.D., Universidad Autónoma de Madrid, September 15, 2006

Bachelor's degree, Universitatea din Craiova, România, July, 2001

Student of University of Pittsburgh, USA, 09/1998-05/1999.

2. Profesional Experience

Researcher CS-III, Institute of Mathematics of the Romanian Academy, 01/05/2008 –

Researcher, Institute of Mathematics of the Romanian Academy, 01/07/2006-31/04/2008

Assistant Professor, Universidad Autónoma de Madrid, 01/04/2006-31/09/2007

3. Publications

- (1) Liviu I. Ignat, Diana Stan, Dispersive properties for discrete Schrodinger equations, accepted in Journal of Fourier Analysis and Applications.
- (2) Liviu I. Ignat, A splitting method for the nonlinear Schrödinger equation, Journal of Differential Equations Vol. 250, Issue 7, 1 April 2011, pp, 3022-3046
- (3) L.I. Ignat, Strichartz estimates for the Schrödinger Equation on a tree and applications, SIAM Journal of Mathematical Analysis, Vol. 42, No. 5, pp. 2041–2057, 2010.
- (4) L.I. Ignat and J.D. Rossi, Asymptotic expansions for nonlocal diffusion equations in L^q -norms for $1 \leq q \leq 2$. *Journal of Mathematical Analysis and Applications* 362 (2010), pp. 190-199.
- (5) L.I. Ignat and J.D. Rossi, Decay estimates for nonlocal problems via energy methods. *Journal de Mathématiques Pures et Appliquées*, (9) 92 (2009), no. 2, 163–187.
- (6) L.I. Ignat and E. Zuazua. Convergence of a two-grid algorithm for the control of the wave equation. *Journal of European Mathematical Society*, 11 (2009), no. 2, 351–391.
- (7) L.I. Ignat and E. Zuazua. Numerical dispersive schemes for the nonlinear Schrödinger equation. *SIAM Journal of Numerical Analysis*, 47 (2009), no. 2, 1366–1390..
- (8) L.I. Ignat and J.D. Rossi, Refined asymptotic expansions for nonlocal diffusion equations *Journal of Evolution Equations*, 8 (2008), no. 4, 614–629.
- (9) L.I. Ignat and J.D. Rossi, Asymptotic behaviour for a nonlocal diffusion equation on a lattice. *Z. Angew. Math. Phys.* 59 (2008), no. 5, 918–925.
- (10) L. I. Ignat and J.D. Rossi. *A nonlocal convection-diffusion equation*. *J. Functional Analysis*, 251(2) (2007), 399–437.
- (11) L.I. Ignat. Fully discrete schemes for the Schrödinger equation: Dispersive properties. *Math. Models Methods Appl. Sci.*, 17(4):567–591, 2007.
- (12) L.I. Ignat. Global Strichartz estimates for approximations of the Schrödinger equation. *Asymptotic Analysis*, 52:37–51, 2007.
- (13) L.I. Ignat and E. Zuazua. Dispersive properties of numerical schemes for nonlinear Schrödinger equations. In *Foundations of Computational Mathematics, Santander 2005*. L. M. Pardo et al. eds, volume 331, pages 181–207. London Mathematical Society Lecture Notes, 2006.

- (14) L.I. Ignat. Qualitative properties of a numerical scheme for the heat equation. Bermúdez de Castro, A. (ed.) et al., Proceedings of ENUMATH 2005, the 6th European conference on numerical mathematics and advanced applications, Santiago de Compostela, Spain, July 18–22, 2005. Springer. 593-600, 2006.
- (15) L.I. Ignat and E. Zuazua. A two-grid approximation scheme for nonlinear Schrödinger equations: dispersive properties and convergence. *C. R. Acad. Sci. Paris, Ser. I*, 341(6):381–386, 2005.
- (16) L.I. Ignat and E. Zuazua. Dispersive properties of a viscous numerical scheme for the Schrödinger equation. *C. R. Acad. Sci. Paris, Ser. I*, 340(7):529–534, 2005.
- (17) L. I. Ignat and C. Lefter and V. D. Radulescu, Minimization of the renormalized energy in the unit ball of R^2 . *Nieuw Arch. Wiskd.* (5) 1 (2000), no. 3, 278–280

4. Awards

- (1) "Dimitrie Pompeiu" prize of the Romanian Academy, 2009.
- (2) 2009 ANCS (National Authority for Scientific Research) prize for the best young researcher returned to Romania.
- (3) Honorable Mention, Putnam Competition, USA, 1998.
- (4) Silver Medal, International Mathematical Olympiad, Argentina, 1997.

5. Students

Diana Stan (actually PhD student at ICMAT, CSIC, Madrid), Scoala Normala Superioara Bucuresti, Master Thesis, 2010.

6. Research Projects

Director of Research Projects

- (1) Analysis, Control and Numerical Approximations of Partial Differential Equations, CNCS, PN II, PN-II-ID-PCE-2011-3-0075, 01/10/2011-30/09/2014, 1500000RON=350000 euros.
- (2) Cualitative properties of partial differential equations and their numerical approximations, CNCSIS, PN II, TE-4/2010, 28/07/2010 - 27/07/2013, 750000RON=175000 euros.
- (3) Cualitative properties of difussion and dispersion in the study of the nonlinear problems and their numerical approximations, CNCSIS, PN II, RP-3,10/2007-09/2009, 500000 RON=125000 euros.

Member in Research Projects

- (1) Ecuaciones en Derivadas Parciales: Análisis, Control, Numérico y Aplicaciones, MTM2008-03541, MEC Spain, 2009-2011, 182300 euros, Grant Director Enrique Zuazua.
- (2) Dezvoltarea unui parteneriat european pentru studiul unor probleme actuale de analiza matematica, IMAR, CEx06-M3-102/01.08.2006, August 2006 - Iulie 2008, Grant Director: Prof. Dr. Florin Rădulescu.
- (3) Desarrollo de aplicacion informatica para el diseno optimo aeronautico mediante tecnicas novedosas, Universidad Autonoma de Madrid, PLAN NACIONAL DE INVESTIGACION CIENTIFICA, DESARROLLO E INNOVACION TECNOLOGICA (CIT-370200-2005-10) MEC- Spain, 1/11/2005 - 30/10/2008, Grant Directors: Francisco Palacios, Instituto Nacional de Tecnica Aeroespacial, Enrique Zuazua Iriondo UAM, 240000 euro.
- (4) Analisis, aproximacion numerica y diseno optimo de ecuaciones en derivadas parciales, MTM 2005-00714, Universidad Autonoma de Madrid, MEC, 01/11/2005 - 31/10/2008, Grant Director Enrique Zuazua Iriondo, 192 000 euro.
- (5) Analisis, Control y Simulacion Numerica en medios heterogeneos y en la interaccion fluido-estructura, BFM2002-03345, Universidad Autónoma de Madrid, MCYT, Grant Director Enrique Zuazua Iriondo, 171 000 euro.
- (6) Smart system, new materials, adaptive systems and their nonlinearities modelling, control and numerical simulation, HPRN-CT-2002-00284, Universidad Autónoma de Madrid, EU, Grant Director: Enrique Zuazua Iriondo, 130000 euro Spanish group.

- (7) Homogenization and Multiple Scales, HPRN-CT-2000-00109, Universidad Autónoma de Madrid, EU, Grant Director Enrique Zuazua Iriondo, 180 000 euros Spanish group.

7. Fellowships

- (1) Fellowship from Institute henry Poincare Paris as participant to the program "Trimestre sur le Contrôle des Equations aux Drives Partielles et Applications ", Paris, oct-dec 2010.
- (2) Fellowship from Cambridge Philosophical Society as young participant to the program Highly Oscillatory Problems: Computation, Theory and Application of Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, 2007.
- (3) FPU fellowship for realizing the Ph.D. thesis, Spanish Ministry of Education, 01/01/2004-31/03/2006, Universidad Autónoma de Madrid, Madrid, Spain.
- (4) Pre-doctoral Fellowship, E.U Project Homogenization and Multiple Scales, 25/09/2002-31/12/2003, Universidad Autónoma de Madrid, Spain.
- (5) Scholarship from University Honours College of University of Pittsburgh, USA, 09/1998-05/1999, University of Pittsburg, USA.

8. Presentations

- (1) Liviu Ignat, Uniform Boundary Observability of a Two-Grid Method for the 2d- Wave Equation, Workshop on Control of Dispersive Equations November 8-10, 2010, part of Control of Partial and Differential Equations and Applications Trimester, Institute Henri Poincare, Paris
- (2) Liviu Ignat, Null controllability of the heat equation on the Heisenberg group, Workshop Control of parabolic equations and systems, applications to fluids, November 15-19, 2010, part of Control of Partial and Differential Equations and Applications Trimester, Institute Henri Poincare, Paris
- (3) Liviu Ignat, Strichartz estimates for the Schroedinger equation on a tree and applications, Highly Oscillatory Problems: From Theory to Applications, 12-17 September 2010 , The Isaac Newton Institute, Cambridge, UK, Conferinta organizata de European Science Foundation
- (4) Convergence rates for dispersive approximation schemes to nonlinear Schrödinger equations, 10eme Colloque Franco-Roumain de Mathematiques Appliquees, Poitiers, august 2010, Franta, plenary talk
- (5) A splitting method for nonlinear Schrödinger equation, 10eme Colloque Franco-Roumain de Mathematiques Appliquees, Poitiers, august 2010, France
- (6) Asymptotics for nonlocal evolution equations, Workshop on Partial differential equations, optimal design and numerics, 28 august 2009, Benasque, Huesca, Spain
- (7) Schrodinger equations on trees, MTM Workshop, Basque Center for Applied Mathematics, 1 iulie 2009, Bilbao, Spania
- (8) Splitting methods for Schrodinger equations, MTM Workshop, Basque Center for Applied Mathematics, 1 iulie 2009, Bilbao, Spania
- (9) Asymptotics for nonlocal evolution equations, Workshop on non-local equations, Leganes, Madrid, 29-30 iunie 2009.
- (10) A nonlocal convection-diffusion equation, Romanian - German Symposium on Mathematics and its Applications May 14 - 17, 2009, Sibiu (Romania)
- (11) Asymptotics for nonlocal evolution equations, Basque Center for Applied Mathematics, Bilbao, Spania, dec. 2008.
- (12) Asymptotics for nonlocal evolution equations, Universit de Picardie-Jules Verne, Laboratoire Aminois de Mathématique Fondamentale et Applique, Amiens, Franța, sep. 2008.
- (13) A nonlocal convection diffusion equation, Exploratory Workshop on Asymptotic Analysis and Applications in Continuum Mechanics, Braşov, August 28 - 30, 2008.
- (14) A nonlocal convection-diffusion equation, Universidad Complutense de Madrid, 4/03/2008.
- (15) A nonlocal convection-diffusion equation, Dispersive CIM Workshop on PDE's, Numerical Simulation and Applications" organizat la Centro Internacional de Matematicas, Coimbra, 14/12/2007

- (16) A nonlocal convection-diffusion equation, IMAR, Bucuresti, 13/11/2007.
- (17) Uniform Boundary Observability of a Two-Grid Method for the 2d-Wave Equation, Workshop "Dispersive long waves models: control theory and boundary value problems", Wolfgang Pauli Institute, Viena, 17/10/ 2007
- (18) Dispersive schemes for linear and nonlinear Schrödinger equations, invited conference in the program Highly Oscillatory Problems: Computation, Theory and Application, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, 08/04/2007
- (19) Uniform Boundary Observability of a Two-Grid Method for the 2d-Wave Equation, Invited Conference, University Roma1 La Sapienza", Roma, 21/02/2007.
- (20) Uniform Boundary Observability of a Two-Grid Method for the 2d-Wave Equation, European Conference on Smart Systems, Roma, 26-28/10/2006.
- (21) Uniform Boundary Observability of a Two-Grid Method for the 2d-Wave Equation, International Congress of Mathematicians, Madrid, 22-30/08/2006.
- (22) Uniform Boundary Observability of a Two-Grid Method for the 2d-Wave Equation, Institute of Mathematics of Romanian Academy, Bucharest, 7-14/06/2006.
- (23) Numerical approximation scheme for dispersive equations, Workshop "Partial Differential Equations, Optimal Design and Numerics", Benasque, 28.08-09.09.2005.
- (24) Unique continuation property for the eigenvalues of the discrete Laplacian on the square, Workshop "Partial Differential Equations, Optimal Design and Numerics", Benasque, 28/08-09/09/2005.
- (25) Qualitative properties of Numerical Approximations of the Heat Equation, European Conference on Numerical Mathematics and Advanced Applications: Enumath 2005, Santiago de Compostela, 18-22/06/2005.
- (26) Schrödinger equations, numerical approximation schemes and dispersive properties, The seminar of Applied Mathematics of Department of Mathematics of Universidad Autnoma de Madrid, Madrid, Spain.
- (27) Dispersive properties for numerical approximation of Schrödinger Equation, Universite de Tunis,Tunis, 30.04.2004.
- (28) Dispersive properties for numerical approximation of Schrödinger Equation, Midterm meeting of the TMR project Homogenization and multiple scales, Heidelberg, Germany, 6/12/2002 7/12/2002.
- (29) A Variational Approach to Discontinuous Problems with Critical Exponents, Inequalities, Timisoara, Rumania, 9/07/2001-14/07/2001.

9. Participant to programs, workshops, courses

- (1) Flow control in the presence of shocks: theory, numerics and applications Enrique Zuazua (BCAM) 23-27 November 2009, Basque Center for Applied Mathematics, Bilbao, Spania.
- (2) Control problems in quantum mechanics Jean-Pierre Puel (Université de Versailles St Quentin, France) 16-20 November 2009, Basque Center for Applied Mathematics, Bilbao, Spania.
- (3) Controle et problemes inverses pour les EDP : aspects theoriques et numeriques, CIRM, Marseille, France, 16-20/02/2009.
- (4) The program Highly Oscillatory Problems: Computation, Theory and Application organized by Isaac Newton Institute for Mathematical Sciences, Cambridge, Uk, 12/04/2007-09/05/2007.
- (5) The course "Computational Methods for Flow and Structural Control", Prof. Roland Glowinski, Univ. of Houston, 16-20/05/2005, Universidad Autnoma de Madrid, Madrid, Spain.
- (6) The course "A short course on Level Set Methods", Prof. Gregoire Allaire, Ecole Polytechnique Paris, 11-15/04/2005, Universidad Autónoma de Madrid, Madrid, Spain.
- (7) Primer Congreso Conjunto de Matemáticas RSME-SCM-SEIO-SEMA, Valencia, 31/01 04/02/2005, RSME-SCM-SEIO-SEMA, Valencia, Spain.
- (8) Fabes Lectures on Real Analysis & PDE's, Bilbao, 9/9/2004-11/09/2004, Universidad del Pais Vasco/Euskal Herriko Unibertsitatea, Spain.
- (9) 7th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial, Madrid, Spain, 21/06/2004-25/06/2004.

- (10) The course Domain Decomposition Solution of PDE's and Applications, Prof. Alfio Quarteroni, Ecole Polytechnique Fédérale de Lausanne, 23-27/02/2004, Universidad Autónoma de Madrid, Madrid, Spain
- (11) The course Nuevos Retos en Matemática Aplicada, Castro Urdiales, Spain, 1/09/2003-5/09/2003.
- (12) Workshop on Harmonic Analysis and Partial Differential Equations, Puerto Vallarta, Mexico, 23/06/2003-27/06/2003.
- (13) The course Numerical Analysis, Craiova, Romania, may 2002.
- (14) The course Nonlinear Analysis, Brasov, Romania, July 2000.