Nicolas SAINTIER's Curriculum Vitæ

December 2018

Personal data

Date of birth:	June 18th 1979 in Rouen (France)
Postal Address :	Departamento de Matemática, FCEyN, UBA (1428)
	Ciudad Universitaria, Pab.I (1428)
	Buenos-Aires, Argentina.
e-mail:	nsaintie@dm.uba.ar
web page:	http://mate.dm.uba.ar/ nsaintie/

Asistant Professor at the Mathematics Department, College of Exact Sciences, Buenos Aires University

Degrees

- PhD in Mathematical Sciences, Paris 6 University, France (2002-05)
  avisors: Prof. E. Hebey (Cergy-Pontoise - France), Prof. M. Vaugon (Paris 6 - France).

- Master of "Modelization and Matematical Methods in Economy", Paris 1 - Panthéon Sorbonne University (France) (2004-2005)

- Master of "Analysis", Paris 6 University, France (2001-02).

Publications

[34] Azmy S. Ackleh, N. Saintier, *Well-posedness for a system of transport and diffusion equations in measure spaces*, submitted.

[33] N. Saintier, L. Véron, *Nonlinear elliptic equations with measure valued absorption potential*, submitted.

[32] J. Fernandez Bonder, N. Saintier, A. Silva, *The concentration-compactness principle for fractional order Sobolev spaces in unbounded domains and applications to the generalized fractional Brezis-Nirenberg problem*, to appear in NoDEA.

[31] M. C. Pereira, J.D. Rossi, N. Saintier, *Fractional problems in thin domains*, submitted.

[30] M. Perez-Llanos, J.P. Pinasco, N. Saintier, A. Silva, *Opinion formation models with heterogeneous persuasion and zealotry*, por aparecer en SIAM Journal on Mathematical Analysis.

[29] J.P. Pinasco, M. Rodriguez Cartabia, N. Saintier, A game theoretic model of wealth distribution, Dynamic Games and Applications, 8 (4), 2018, 874-890.

[28] P. Groisman, S. Saglietti, N. Saintier, *Metastability for small random perturbations of a PDE with blow-up*, Stochastic Processes and Applications, 128 (5), 2018, 1558-1589.

[27] I. Caridi, J.P. Pinasco, N. Saintier, P. Schiaffino, *Characterizing Segregation in the Schelling-Voter Model*, Physica A, 487, 2017, 125-142.

[26] N. Saintier, A. Silva, *Local existence conditions for an equations involving the $p(x)$-Laplacian with critical exponent in $\mathbb{R}^N$*, Nonlinear Differential Equations and Applications, 24, 2017.

[25] D. Bonheure, J.D. Rossi, N. Saintier, *The limit as $p \to +\infty$ in the eigenvalue problem for a system of p-Laplacians*, to appear in Annali di Matematica Pura ed Applicata. .

[24] I. Drelichman, P. De Napoli, N. Saintier, *Weighted embedding theorems for radial Besov and Triebel-Lizorkin spaces*, Studia Mathematica, 3485, 2016, 47-65.

[23] L. Del Pezzo, J.D. Rossi, N. Saintier, A. Salort, *An optimal mass transport approach for limits of eigenvalue problems for the fractional p-Laplacian*, Advances in Nonlinear Analysis, 4 (3), 2015, 235-249.

[22] H.T. Banks, D. Rubio, N. Saintier, M. I. Troparevsky, *Optimal design for parameter estimation in EEG problems in 3D multilayered domain*, Mathematical Biosciences and Engineering, in press.

[21] J.D. Rossi, N.Saintier, *The limit as $p \to +\infty$ of the first eigenvalue for the p-Laplacian with mixed Dirichlet and Robin boundary conditions*, Nonlinear Analysis Series A: Theory, Methods and Applications, 119, 2015,167-178.

[20] J. Fernandez Bonder, N. Saintier, A. Silva, *Existence of solution to a critical trace equation with variable exponent*, Asymptotic Analysis, 93 (1-2), 2015, 161-185.

[19] E. Parini, N. Saintier, *Shape derivative of the Cheeger constant*, ESAIM:COCV, 21 (2), 2015, 348-358.

[18] J.D. Rossi, N.Saintier, *On the first nontrivial eigenvalue of the ∞-Laplacian with Neumann boundary conditions*, Houston Journal of Mathematics, 42 (2), 2016, 613-635.

[17] J. Fernandez Bonder, N. Saintier, A. Silva, *On the Sobolev trace Theorem for variable exponent spaces in the critical range*, Anali di Matematica Pura ed Aplicata, 193 (6), 2014, 1607-1628.

[16] H.T. Banks, D. Rubio, N. Saintier, M. I. Troparevsky, *Optimal Design Techniques for Distributed Parameter Systems*, SIAM Conference on Control and Its Applications, San Diego, California, USA July 8-10, 2013.

[15] J.C. Navarro, J.D. Rossi, N.Saintier, A. San Antolin, *The dependence of the 1st eigenvalue of the ∞-Laplacian with respect to the domain*, Glasgow Mathematical Journal. 2013, 1-9.

[14] J. Fernandez Bonder, N. Saintier, A. Silva, *On the Sobolev embedding theorem for variable exponent spaces in the critical range*, Journal of Differential Equations, 253 (5), 2012, 1604-1620.

[13] J. Fernandez Bonder, N. Saintier, A. Silva, *Existence of solution to a critical equation with variable exponent*, Ann. Acad. Sci. Fenn. Math., 37, 2012, 579-594.

[12] M. I. Troparevsky, D. Rubio, N. Saintier, *Sensitivity analysis for the EEG forward problem*, Frontiers in computational neuroscience, 4, 2010, 1-6.

[11] N. Saintier, *Best constant in critical Sobolev inequalities of second-order in the presence of symmetries*, Nonlinear Analysis TMA, 72 (2), 2010, 689-703.

[10] N. Saintier, *Asymptotic in Sobolev spaces for symmetric Paneitz-type equations on Riemannian manifolds*, Calculus of Variations and Partial Differential Equations, 35, 2009, 385-407.

[9] N. Saintier, *Asymptotic of best Sobolev constants on thin manifolds*, Journal of differential equations, 246, 2009, 2876-2890.

[8] N. Saintier, *Estimates of the best Sobolev constant of the embedding of $BV(\Omega)$ into $L^1(\partial\Omega)$ and related shape optimization problems*, Nonlinear Analysis TMA, 69,2008, 2479-2491.

[7] N. Saintier, *Blow-up theory for symmetric critical equations involving the p-Laplacian*, Nonlinear Differential Equations and Applications, 15 (1-2), 2008, 227-245.

[6] N. Saintier, *General Stochastic target problem with mixed diffusion and application to hedging problem for large investor*, Electronic Communications in Probability, 12, 2007, 106-119.

[5] J. Fernández Bonder, N. Saintier, *Estimates for the Sobolev trace constant with critical exponent and applications*, Annali di Matematica Pura ed Applicata, 187 (2008), no. 4, 683–704.

[4] N. Saintier, *Schauder estimates for degenerate elliptic and parabolic equations in $\mathbb{R}^n$ with Lipschitz drift*, Differential and Integral Equations, 20 (4), 2007, 397-428.

[3] E.Hebey, N. Saintier, *Stability and perturbations of the domain for the first eigenvalue of the 1-laplacian*, Archiv der Mathematik, 86, (4), 2006, 340-351.

[2] N. Saintier, *Changing sign solutions of a conformally invariant fourth order equation in the Euclidean space*, Communications in Analysis and Geometry, 14 (4), 2006, 613-624.

[1] N. Saintier, *Asymptotic estimates and blow-up theory for critical equations involving the p-laplacian*, Calculus of Variations and Partial Differential Equations, 25 (3), 2006, 299-331.

Talks

- *Measure-valued solutions for some problems arising in biology and social sciences*, invited talk given in the Workshop 'Mathematical Modeling with Measures: Where Applications, Probability and Determinism Meet' - Leiden (Holland) 3-7 December 2018.

- *Measure-valued solutions for some problems arising in biology and social sciences*, talk given in the "V International Conference on Applied Mathematics, Design and Control", Buenos Aires 7-9 Novembre 2018.

- *Nonlinear elliptic equations with measure valued absorption potential*, seminario di Analisi Matematica - University of Parma (Italy) - 6th of july 2018.

- *Algunas herramientas matematicas para modelar el proceso de formación de opinión*, mathematics and statistics department seminar of Di Tella University (Buenos Aires), 10/05/2018.

- *Nonlinear elliptic equations with measure valued absorption potential*, PDE seminar of the mathematics department FCEyN-UBA - 10/04/2018.

- *Nonlinear elliptic equations with measure valued absorption potential*, invited talk at the "South American Workshop on Integral and Differential Equations", Febrary 26-28, 2018, Universidad de San Pablo, Brasil.

- *Opinion formation model with stubborn agents*, plenary talk at the "XI Americas Conference on Differential Equations and Nonlinear Analysis", August 15-19, 2017, University of Alberta, Edmonton, Canada.

- *Inverse problems for random dfferential equations*, "'VI MACI 2017"' - Comodoro Rivadavia (Argentina), May 4th, 2017.

- *Modelo de formación de opinión con agentes testarudos*, math dpt seminar of Universidad Nacional de San Luis (Argentina), March 22nd, 2017.

- *EDP en ciencias sociales*, invited talk at the "Segundas Jornadas de Investigación y Difusión" del IMAS-DM, FCEyN-UBA, Novemeber 30, 2016.

- *Ecuaciones críticas con el p(x)-Laplaciano en $\mathbb{R}^n$*, XIII Encuentro Nacional de Analistas A.P.Calderón, Villa Gral Belgrano (Argentina), 15/ 05/ 2016.

- *On the first eigenvalue of the p-Laplacian when $p \to +\infty$*, "X Americas Conference on Differential Equations and Nonlinear Analysis", 19/02/2015, Buenos Aires, Argentina.

- *Sobre el límite cuando $p \to +\infty$ del 1er autovalor del p-Laplaciano con varias condiciones de borde*, Reunión anual de la Unión Matemática Argentina, sesión de ecuaciones diferenciales, Universidad de San Luis (Argentina), 19/092014.

- *Sobre el límite cuando $p \to +\infty$ del 1er autovalor del p-Laplaciano con varias condiciones de borde*, XII Encuentro Nacional de Analistas A.P.Calderón, Villa Gral Belgrano (Argentina), 8/08/2014.

- *On the first nontrivial eigenvalue of the ∞-Laplacian with Neumann boundary conditions*, invited talk in the session "Local and non-local evolution problems" of the "Mathematical Congress of the Americas", Guanajuato (México),August 5-9, 2013.

- *Critical equations with the p(x)-Laplacian*, invited talk, IV Congreso Latinoamericano de Matemáticos (CLAM) - PDE session, Córdoba (Argentina), 06/08/2012.

- *Critical equations with the p(x)-Laplacian*, invited talk, Jornada de análisis, EDP y matemática aplicada, Instituo Argentino de Matemática, Buenos Aires (Argentina), 28/06/2012.

- *Critical equations with p(x)-Laplacian*, plenary talk, IX Americas conference on Differential Equations, Trujillo (Perú), 13/01/2012.

- *Equations elliptiques avec exposant de Sobolev critique en présence de symétrie*, Analysis Seminar, Univ. Paris-Dauphine (France), 22/11/11.

- *Ecuaciones elípticas en presencia de simetría sobre variedades compactas*, 2ndo Workshop Ecuaciones de la Física matemática. 25 de Noviembre 2010 - Gral Sarmiento Nat.Univ. (Argentina).

- *Comportamiento asintótico y multiplicidad para ecuaciones singularmente perturbadas con simetría*, charla invitada, Reunión Anual de la UMA, Tandíl (Argentina), 01/10/2010.

- *Algunos comentarios sobre distribuciones óptima de observaciones para estimación de parámetros*, 2nd MACI, Rosario (Argentina), 14/12/2009.

- *El método de Lyapunov-Schmidt*, seminario de ecuaciones diferenciales del dpto de matemática de la FCEyN UBA, 03/11/09.

- *Simetría en las ecuaciones críticas*, reunión anual de la Unión Matemática Argentina, sesión de ecuaciones diferenciales, Universidad de Cuyo, Mendoza, 25/09/08-27/09/08.

- *Asymptotic in Sobolev spaces for symmetric critical fourth-order equations on manifolds*, VII workshop On Nonlinear Differential Equations, Rio de Janeiro (Brasil), 15/09/08-19/09/08.

- *Simetría en las ecuaciones críticas*, Seminario de EDP y análisis numérico, Dpto Matemática, FCEyN, 11/2007.

- *Shape optimization for a critical Steklov eigenvalue problem with the p-laplacian in domains with holes*, Primer Encuentro Nacional de Ecuaciones Differenciales, La Falda (Argentina), 11/2006.

- *Stability of the 1st eigenvalue of the* 1-*laplaciano,*

    - Seminario de EDP y análisis numérico, Dpto Matemática, FCEyN, 09/2006.
    - conference "Mathematics and its Applications" - "Geometric Analysis" session, Torino (Italy), julio 2006.
    - differential geometry seminar, Institut Elie Cartan (Nancy - Francia), 2006.
    - analysis seminar, Parma University (Italia), 2006.
    - Seminario de EDP, Universidad Autónoma de Madrid (España), 2006.
    - PDE seminar, Savoie session, Chambéry (France), 2006.

Grants

- member, FA9550-14-1-0276 " Applied and theoretical issues on inverse problems", Southern Office of Aerospace Research and Development, Air Force Office of Scientific Research (2014-2017).

- member of the executive board, "'Ecuaciones diferenciales y problemas de frontera libre"', PICT 2012-0153, 2012-2015.

- member, UBACyT 20100100400 of CONICET (July 2010 - May 2013).

- member, MathAmSud: "'Quasilinear equations and singular problems"', 2013-2014.

- member, PIP 2009 845/10 of CONICET (July 2010 - June 2013).

- member, MathAmSud "Nonlinear Analysis and Partial Differential Equations", 2011-2012.

- member, FA9550-10-1-0037 "Parameter Estimation and Source Localization in 3D Elliptic Equations with Interfaces", Southern Office of Aerospace Research and Development, Air Force Office of Scientific Research (2010-2013).

- Co-director, ANPCyT PICTO-2008-00089.

- member, ANPCyT PICT 2006-290 (Marzo 2008 - Marzo 2011).

- Co-director, UBACyT X078 (Julio 2008 - Mayo 2010).

Participation in organization of congress

- member of the local commitee organization of "X Americas Conference on Differential Equations and Nonlinear Analysis" 9-20 Febrero 2015, Buenos Aires, Argentina.

- Co-organizer of the session "'Ecuaciones Diferenciales y Aplicaciones"' in the 4th Congress of applied, computational and industrial mathematics (MACI IV, 15-17 May 2013, Buenos Aires, Argentina).

Student advisor

- **Postdoctoral student**: A. Silva (FCEyN - UBA) - 2013-2014.

- **Undergradate student supervisor**:

  - Mariela Rajngewerc's bachelor thesis (dpto de Matemática FCEyN UBA) "Algunos modelos de formación de opinión" - 13/04/2016 - FCEyN UBA.
  - Co-director (with Prof. P. Amster - FCEyN UBA) J. Almarza's bachelor thesis "'El cálculo estocástico en la valuación de activos financieros"' 29/12/2011 - FCEyN UBA

Referee experience

- **Referee for the journals**: "'Advances in pure and applied mathematics"', "'Annali dell'Universita di Ferrara"', "'Boundary value problems"', "'Canadian Applied Mathematics Quarterly"', "'Communications on Pure and Applied Analysis"', "'Complex variables and ellitpic equations"', "'Finance and Stochastics"', "'Manuscripta mathematica"', "'Mathematische Nachrichten"', "'Nonlinear Analysis TMA"', "'Proceedings A of the Royal Society of Edinburgh"', "'Revista de la unión matemática Argentina"', "'SIAM Journal on Control and Optimization"', "'Studies in mathematical sciences"', "'Topological Methods in Nonlinear Analysis"'.

- **Reviewer** for the Mathematical Reviews of the AMS.

- **Jury of doctoral and bachelor thesis** in the Maths. Department of FCEyN, UBA I. Ojea's PhD thesis 25/03/2014, A. Ritorto's bachelor thesis 21/03/14, M. Prieto's PhD thesis 18/03/13, I. Drelichman's Phd thesis 17/12/10, J. Epstein's bachelor thesis 4/11/13, M. Rodriguez Cartabia's bachelor thesis 28/05/13, L. Chiappara's bachelor thesis 22/03/10, G. Giezcewski's bachelor thesis 11/08/11)

- Reviewer for the General Sarmiento National University.

Visits in foreign universities

- 3/07/18-6/07/18: University of Ferrara (Italy), invited by Prof. L. Pareschi.

- 21/05/18-25/05/18: North Carolina State University (USA), invited by Prof. H.T. Banks,

- 17/05/18-24/05/17: North Carolina State University (USA), invited by Prof. H.T. Banks,

- 16/05/17-25/05/17: North Carolina State University (USA), invited by Prof. H.T. Banks,

- 28/07/16-02/08/16: Louisiana State University at Lafayette (USA), invitied by Prof A.S. Ackleh.

- 20/07/16-26/07/16: North Carolin State University (USA), invited by Prof. H.T. Banks,

- 15/02/16-19/02/16: North Carolin State University (USA), invited by Prof. H.T. Banks,

- 23/02/15-27/02/15: North Carolin State University (USA), invited by Prof. H.T. Banks,

- 02/12/14-12/12/15: University of Tours (France), invited by Prof. L. Véron.

- 05/02/14-15/02/14: North Carolin State University (USA), invited by Prof. H.T. Banks,

- 01/07/13-31/07/13: Alicante University (Spain), invited by Prof. J.D. Rossi,

- 14/01/13-18/01/13: North Carolin State University (USA), invited by Prof. H.T. Banks,

- 16/07/12-20/07/12: North Carolin State University (USA), invited by Prof. H.T. Banks,

- 12/12/11-16/12/11: Parma University (Italy), invitedo Prof. M. Belloni,

- 5/12/11-9/12/11: Alicante University (Spain), invited by Prof. J.D. Rossi,

- 21/11/11-01/12/11: Paris-Dauphine University (Francia), invited by Prof. J. Dolbeault,

- 12/04/11-20/04/11: North Carolin State University (USA), invited by Prof. H.T. Banks

- 02/08/10-06/08/10: North Carolin State University (USA), invited by Prof. H.T. Banks

- one week in February 2008 and February 2010 at Parma Universityu (Italy), invited by Prof. M. Belloni,

- from Marhc to June 2006: Parma University (Italy) (postdoc).

Scholarship

- postdoctoral scholarship (Proyecto PICT 03-13719 del FONCYT, 01/07/2006 - 01/07/2007) under the supervision of J. Fernández Bonder (Buenos Aires University - Argentina)

- postdoctoral scholarship (red HPRN-CT-2002-00281 of the UE 3/06-6/06) under the supervision of A. Lunardi (Parma university - Italia)

- Doctoral scholarship (01/10/2002 - 31/09/2005) from french government.

Teaching activities

- Lectures given in Analyisis I, Complex Analysis (UBA), Game Theory (UBA), Mass Optimal transportation (UBA), Partial differential equations (UBA), Mathematics 4 (UNGS, UBA), Probability and Statistics (UNGS, UBA), Analysis 1 (UBA),

- Exercises session given in Mathematics 4 (UNGS, UBA), Probability, Compex Analysis, Numerical Analysis.