

Curriculum Vitae

Julián Fernández Bonder

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Personal data.

DATE OF BIRTH: August 5th, 1969.
PASSPORT: 20.956.272
CIVIL STATUS: Married, three childs.
POSTAL ADDRESS: Dto. de Matemática, FCEyN, UBA.
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Degrees.

- Licenciado en Cs. Matemáticas (1989-1995). School of Exact Sciences (UBA).
- PhD in Mathematical Sciences. Universidad de Buenos Aires (1996-2002)
Advisor: N. Wolanski

Current position.

- Associate Professor, Department of Mathematics, School of Exact Sciences, UBA.
- Member of CONICET (Independent Researcher).

Student Adviser.

Graduate students.

1. PhD advisor: Leandro Del Pezzo, 2005–2009. *Some optimization problems for the p -Laplacian.*
2. Posdoctorant advisor: Nicolas Saintier, 2007.
3. PhD advisor: Ariel Martín Salort, 2008–
4. PhD advisor: Analía Silva, 2008–

Undergraduate students.

1. Bachelor Thesis: Leandro Del Pezzo, *An optimization problem for the first eigenvalue of the p -Laplacian with a potential*. Presented on April, 2005.
The results in this Thesis appeared in *Communications on Pure and Applied Analysis*, **5** (2006), no. 4, 675–690.
2. Bachelor Thesis: Analía Silva, *Multiple solutions for quasilinear elliptic equations with critical growth*. Presented on May, 2008.
The results in this Thesis appeared in *Nonlinear Analysis*, **71** (2009), 6283–6289.

Publications.¹

Refereed Journals.

1. J. Fernández Bonder, N. Saintier and A. Silva. *Existence of solution to a critical equation with variable exponent*. Submitted.
2. J. Fernández Bonder, J.P. Pinasco and A.M. Salort. *Eigenvalue homogenization for quasilinear elliptic operators in one space dimension*. Submitted.
3. J. Fernández Bonder, J.P. Pinasco and A.M. Salort. *Eigenvalue homogenization for quasilinear elliptic operators*. Submitted.
4. J. Fernández Bonder, N. Saintier and A. Silva. *On the Sobolev embedding theorem for variable exponent spaces in the critical range*. Submitted.
5. L. Del Pezzo, J. Fernández Bonder and W. Neves. *Optimal boundary holes for the Sobolev trace constant*. *Journal of Differential Equations*, **251** (2011), no. 8, 2327–2351.
6. J. Fernández Bonder and A. Silva. *The concentration-compactness principle for variable exponent spaces and applications*. *Electronic Journal on Differential Equations*, **2010** (2010), no. 141, 1–18.
7. J. Fernández Bonder, J.P. Pinasco and A.M. Salort. *Refined asymptotics for eigenvalues on domains of infinite measure*. *Journal of Mathematical Analysis and Applications*, **371** (2010), no. 1, 41–56.
8. L. Del Pezzo and J. Fernández Bonder. *An optimization problem for the first weighted eigenvalue problem plus a potential*. *Proceedings of the American Mathematical Society*, **138** (2010), no. 10, 3551–3567.
9. J. Fernández Bonder and J.P. Pinasco. *Precise asymptotic of eigenvalues of resonant quasilinear systems*. *Journal of Differential Equations*, **249** (2010), 136–150.
10. J. Fernández Bonder, S. Martínez and N. Wolanski. *A free boundary problem for the $p(x)$ -Laplacian*. *Nonlinear Anal.*, **72** (2010), 1078–1103.
11. L. Del Pezzo and J. Fernández Bonder. *Remarks on an optimization problem for the p -Laplacian*. *Appl. Math. Lett.*, **23** (2010), 188–192.
12. P.L. De Nápoli, J. Fernández Bonder and A. Silva. *Multiple solutions for the p -laplace operator with critical growth*. *Nonlinear Anal.*, **71** (2009), 6283–6289.

¹Copies can be found in: <http://mate.dm.uba.ar/~jfbonder>.

13. J. Fernández Bonder, R. Orive and J.D. Rossi. *The best Sobolev trace constant in periodic media for critical and subcritical exponents*. Glasgow Math. J., **51** (2009), 619–630.
14. J. Fernández Bonder, P. Groisman and J.D. Rossi. *Continuity of the explosion time in stochastic differential equations*. Stoch. Anal. Appl., **27** (2009), no. 5, 984–999.
15. J. Fernández Bonder and P. Groisman. *Time–space white noise eliminates global solutions in reaction diffusion equations*. Physica D, **238** (2009), 209–215.
16. L. Del Pezzo and J. Fernández Bonder. *Some optimization problems for p -Laplacian type equations*. Appl. Math. Optim., **59** (2009), 365–381.
17. J. Fernández Bonder, Julio D. Rossi and Carola-Bibiane Schönlieb. *The best constant and extremals of the Sobolev embeddings in domains with holes: The L^∞ case*. Illinois J. Math., **52** (2008), no. 4, 1111–1121.
18. J. Fernández Bonder and J.P. Pinasco. *Estimates for eigenvalues of quasilinear elliptic systems. Part II*. J. Differential Equations, **245** (2008), no. 4, 875–891.
19. J. Fernández Bonder, Julio D. Rossi and Carola-Bibiane Schönlieb. *An optimization problem related to the best Sobolev trace constant in thin domains*. Commun. Contemp. Math., **10** (2008), no. 5, 1–18.
20. J. Fernández Bonder and N. Saintier. *Estimates for the Sobolev trace constant with critical exponent and applications*. Ann. Mat. Pura Appl., **187** (2008), no. 4, 683–704.
21. J. Fernández Bonder, R. Orive and J.D. Rossi. *The best Sobolev trace constant in domains with holes for critical or subcritical exponents*. ANZIAM J., **49** (2007), 213–230.
22. J. Fernández Bonder, S. Martínez and J.D. Rossi. *Existence results for gradient elliptic systems with nonlinear boundary conditions*. NoDEA Nonlinear Differential Equations Appl., **14** (2007), no. 1-2, 153–179.
23. J. Fernández Bonder, R. Orive and J.D. Rossi. *The best Sobolev trace constant in a domain with oscillating boundary*. Nonlinear Anal. TMA, **67** (2007), 1173–1180.
24. J. Fernández Bonder, P. Groisman and J.D. Rossi. *Optimization of the first Steklov eigenvalue in domains with holes: A shape derivative approach*. Ann. Mat. Pura Appl., **186** (2007), no. 2, 341–358.
25. J. Fernández Bonder, J.D. Rossi and N. Wolanski. *Behavior of the best Sobolev trace constant and extremals in domains with holes*. Bull. Sci. Math., **130** (2006), 565–579.
26. J. Fernández Bonder, L. Del Pezzo and J.D. Rossi. *An optimization problem for the first Steklov eigenvalue of a nonlinear problem*. Differential Integral Equations, **19** (2006), no. 9, 1035–1046.
27. L. Del Pezzo and J. Fernández Bonder. *An optimization problem for the first eigenvalue of the p -Laplacian plus a potential*. Commun. Pure Appl. Anal., **5** (2006), no. 4, 675–690.
28. J. Fernández Bonder, S. Martínez and N. Wolanski. *An optimization problem with volume constrain for a degenerate quasilinear operator*. J. Differential Equations, **227** (2006), no. 1, 80–101.
29. J. Fernández Bonder. *Multiple solutions for the p -laplace equation with nonlinear boundary conditions*. Electron. J. Differential Equations, **2006** (2006), no. 37, 1–7.

30. J. Dávila, J. Fernández Bonder, P. Groisman, J.D. Rossi and M. Sued. *Numerical analysis of stochastic differential equations with explosions*. Stoch. Anal. Appl., **23** (2005), no. 4, 809–825.
31. J. Fernández Bonder, J.D. Rossi and N. Wolanski. *Regularity of the free boundary in an optimization problem related to the best Sobolev trace constant*. SIAM J. Control Optim., **44** (2005), no. 5, 1614–1635.
32. J. Fernández Bonder and J.P. Pinasco. *Eigenvalues of the p -Laplacian in fractal strings with indefinite weights*. J. Math. Anal. Appl., **308** (2005), no. 2, 764–774.
33. J. Fernández Bonder and J.D. Rossi. *On the existence of extremals for the Sobolev trace embedding theorem with critical exponent*. Bull. London Math. Soc., **37** (2005), no. 1, 119–125.
34. J. Fernández Bonder. *Multiple positive solutions for quasilinear elliptic problems with sign-changing nonlinearities*. Abstr. Appl. Anal., **2004** (2004), no. 12, 1047–1056.
35. J. Fernández Bonder, S. Martínez and J.D. Rossi. *The behavior of the best Sobolev trace constant and extremals in thin domains*. J. Differential Equations, **198** (2004), 129–148.
36. J. Fernández Bonder, E. Lami-Dozo and J.D. Rossi. *Symmetry properties for the extremals of the Sobolev trace embedding in small balls*. Ann. l’Institut H. Poincaré. AN, **21** (2004), no. 6, 795–805.
37. J. Fernández Bonder and N. Wolanski. *Uniqueness of limit solutions for a free boundary problem from combustion*. SIAM J. Math. Anal., **36** (2004), no. 1, 172–185.
38. J. Fernández Bonder, R. Ferreira and J.D. Rossi. *Uniform bounds for the best Sobolev trace constant*. Advanced Nonlinear Studies, **3** (2003), 181–192.
39. J. Fernández Bonder and J.P. Pinasco. *Asymptotic behavior of the eigenvalues of the one dimensional weighted p -laplace operator*. Ark. Mat., **41** (2003), 267–280.
40. J. Fernández Bonder and J.D. Rossi. *Asymptotic behavior of the best Sobolev trace constant in expanding and contracting domains*. Commun. Pure Appl. Anal., **1** (2002), no. 3, 359–378.
41. J. Fernández Bonder and J.D. Rossi. *A nonlinear eigenvalue problem with indefinite weights related with the Sobolev trace embedding*. Pub. Mat., **46** (2002), 221–235.
42. J. Fernández Bonder and J.D. Rossi. *A fourth order elliptic equation with nonlinear boundary conditions*. Nonlinear Anal. TMA, **49** (2002), no. 8, 1037–1047.
43. J. Fernández Bonder, P. Groisman and J.D. Rossi. *On numerical blow-up sets*. Proc. Amer. Math. Soc., **130** (2002), pp. 2049–2055.
44. G. Acosta, J. Fernández Bonder, P. Groisman and J.D. Rossi. *Numerical approximation for a parabolic problem with a nonlinear boundary condition in several space dimensions*. Discrete Contin. Dyn. Sys. - Series B, **2** (2002), no. 2, 279–294.
45. G. Acosta, J. Fernández Bonder, P. Groisman and J.D. Rossi. *Simultaneous vs. non-simultaneous blow-up in numerical approximations of a parabolic system with nonlinear boundary conditions*. M2AN Math. Model. Numer. Anal., **36** (2002), no. 1, 55–68.

46. J. Fernández Bonder and J.D. Rossi. *Existence results for the p -Laplacian with nonlinear boundary conditions*. J. Math. Anal. Appl., **263** (2001), no. 1, 195–223.
47. J. Fernández Bonder and J.D. Rossi. *Life span for solutions of the heat equation with a nonlinear boundary condition*. Tsukuba J. Math., **25** (2001), no. 1, 215–220.
48. J. Fernández Bonder and J.D. Rossi. *Existence for an elliptic system with nonlinear boundary conditions via fixed points methods*. Advances Differential Equations, **6** (2001), no. 1, 1–20.
49. J. Fernández Bonder and J.D. Rossi. *Blow-up vs. spurious steady solutions*. Proc. Amer. Math. Soc., **129** (2001), 139–144.
50. J. Fernández Bonder, J.P. Pinasco and J.D. Rossi. *Infinitely many solutions for an elliptic system with nonlinear boundary conditions*. Electron. J. Differential Equations, Conf. **06** (2001), 141–154.
51. J. Fernández Bonder and J.D. Rossi. *Asymptotic behaviour for a parabolic system with nonlinear boundary conditions*. Collect. Math., **51** (2000), no. 3, 285–308.
52. J. Fernández Bonder and N. Wolanski. *A free boundary problem in combustion theory*. Interfaces Free Bound., **2** (2000), no. 4, 381–411.
53. G. Acosta, J. Fernández Bonder and J.D. Rossi. *Stable manifold approximation for the heat equation with nonlinear boundary conditions*. J. Dynam. Differential Equations, **12** (2000), no. 3, 557–578.
54. J. Fernández Bonder, J.P. Pinasco and J.D. Rossi. *Existence results for a Hamiltonian elliptic system with nonlinear boundary conditions*. Electron. J. Differential Equations, **1999** (1999), 1–15.

Lecture Notes.

1. J. Fernández Bonder and P. Groisman. *Explosiones en Ecuaciones Diferenciales Estocásticas* (in Spanish). Cursos y Seminarios del Departamento de Matemática de la FCEN–UBA, serie B, No. 1.

<http://cms.dm.uba.ar/depto/public/cursosyseminarios.html>

Recent talks (last 5 (five) years).

1. *Estimates for eigenvalues of quasilinear elliptic systems*, talk delivered at 2nd Workshop On Elliptic And Parabolic PDE's (Celebrating the 60th birthday of Prof. Manuel Elgueta), Santiago de Chile, Septiembre 2007 and at the LVII Reunión Anual de la UMA, Córdoba, September 2007.
2. *Some optimization problems for nonlinear elastic membranes*, talk delivered at the Math Department, Federal University of Río de Janeiro, Brazil, June 2008 and at the VII Workshop on Nonlinear Differential Equations, PUC, Río de Janeiro, Brazil, September 2008.
3. *Space–time white noise eliminates global in time solutions in reaction–diffusion equations*, talk delivered at the UMA LVIII Annual Meeting, Mendoza, September 2008.
4. *Precise asymptotic of eigenvalues of resonant quasilinear systems*, talk delivered at the VIII Americas Conference on Differential Equations, Veracruz (Mexico), November 2009.

5. *Symmetry and symmetry breaking for the Sobolev trace inequality*, talk delivered at the PDE seminar of CEREMADE, Université Paris-Dauphine, Francia 2010.
6. *Optimal holes at the boundary for the Sobolev trace constant*, talk delivered at the Workshop on PDEs and Harmonic Analysis on the occasion of Professor Tomás Godoy 60th birthday, Córdoba 2010.

Scholarships and Awards.

1. Doctoral scholarship (UBA, 03/1997-02/2001)
2. Prize ‘Misha Cotlar’ in Mathematics from the National Academy of Sciences (Argentina) to the best young mathematician (under 40). December 2009.

Grants (last 5 (five) years).

1. Co-Director, grant ANPCyT PAV2003-00120-00002. 2005–2008.
2. Director, grant ANPCyT PICT 2006 – 290, 2008–2010.
3. Director UBACyT X078, 2008–2010.
4. Responsible of the argentine section of PROSUL (CNPq-CONICET) nro: 490329/2008-0.
5. Responsible of the argentine section of MathAmSud: Nonlinear Analysis and Partial Differential Equations (NAPDE), 2009–2012.
6. Director PIP CONICET 845/10, 2010–2012.

Organization of Conferences and Workshops.

1. Organization of EIED2005 (2do Encuentro Internacional de Ecuaciones Diferenciales Parciales No Lineales). Buenos Aires, 2005.
<http://mate.dm.uba.ar/~eied2005>
2. Organization of PDE2005 (Third International Symposium on Nonlinear PDEs and Free Boundary Problems). Buenos Aires, 2005.
<http://mate.dm.uba.ar/~pde2005>
3. Organization of ENED2006 (Primer Encuentro Nacional de Ecuaciones Diferenciales). La Falda, Córdoba, 2006.
<http://www.dm.uba.ar/ened2006>
4. Co-chair of the PDE session in MACI 2007 (1st Congress in Applied, Computational and Industrial Mathematics). Córdoba, 2007.
<http://www.famaf.unc.edu.ar/~torres/enief2007>
5. Chair of the PDE session in the LVII Anual Meeting of the Unión Matemática Argentina. Córdoba, 2007.
<http://www.famaf.unc.edu.ar/uma2007>

6. Organization of EIED2008 (3er Encuentro Internacional de Ecuaciones Diferenciales Parciales No Lineales) and First Winter School “Luis A. Santaló”. Buenos Aires, 2008.
<http://www.dm.uba.ar/eied2008>
7. Organization of PDE2009 (Fourth International Symposium on Nonlinear Equations and Free Boundary Problems), on the occasion of Prof. Luis Caffarelli’s 60th Birthday. Mar del Plata, 2009.
<http://www.dm.uba.ar/pde2009>
8. Co-chair of the PDE session in MACI 2009 (2nd Congress in Applied, Computational and Industrial Mathematics). Rosario, 2009.
<http://asamaci.unsl.edu.ar/Maci2009/>
9. Co-chair of the PDE session in the LX Anual Meeting of the Unión Matemática Argentina. Tandil, 2010.
<http://www.exa.unicen.edu.ar/uma2010>
10. Co-chair of the PDE session in MACI 2011 (3er Congress in Applied, Computational and Industrial Mathematics). Bahía Blanca, 2011.
<http://asamaci.unsl.edu.ar/maci2011/index.html>

Referee Experience.

- Referee for the Journals: *Journal of Differential Equations*, *Journal of Mathematical Analysis and Applications*, *Commentationes Mathematicae Universitatis Carolinae*, *Acta Mathematica Sinica*, *Applied Mathematical Letters*, *Journal of Physics A*, *The Journal of Lithuanian Association of Nonlinear Analysts (LANA)*, *Electronic Journal of Differential Equations*, *Nonlinear Analysis TMA*, *Bulletin of the Belgian Mathematical Society*, *Revista de la Unión Matemática Argentina*.
- Reviewer for the Institutions: University of Buenos Aires, CONICET (Argentina), CONICYT (Chile) and ANPCYT (Argentina).
- Reviewer for the Mathematical Reviews of the AMS and for Zentralblatt MATH.
- Jury of Doctoral Theses in the Math Departments of FCEyN, UBA and FIQ, UNL.
- Jury of Bachelor Theses in the Math Department, FCEyN, UBA.
- Jury of Doctoral Scholarships granted by the Exact and Natural Sciences Foundation.

Society Memberships.

1. Member of the Unión Matemática Argentina.
2. Member of the American Mathematical Society.