

Curriculum vitae et studiorum of Alberto Ferrero

- Date of birth: 24/6/1976.
- Birthplace: Asti (Italy).
- University degree in Mathematics at “Università degli Studi del Piemonte Orientale” (Italy), 5/7/2000.
Title of the thesis: “Esistenza di soluzioni per equazioni ellittiche singolari a crescita critica”.
Advisor: Filippo Gazzola.
- PhD degree at “Università degli Studi di Milano” (Italy), 7/3/2005.
Title of the thesis: “On quasilinear elliptic equations with polynomial-type reaction terms”.
Advisor: Filippo Gazzola.
- Post-doc fellow from 1/1/2005 to 30/4/2007 at “Università degli Studi di Pisa” (Italy).
Title of the project: “Metodi variazionali e topologici per le equazioni differenziali non lineari”.
Supervisor: Antonio Marino.
- Research associate in Mathematical Analysis from 1/5/2007 to 30/11/2011 at “Università degli Studi di Milano-Bicocca” and from 1/12/2011 at “Università degli Studi del Piemonte Orientale”.
- National Scientific Qualification as associate professor in Mathematical Analysis starting from 30/12/2013.

Publications:

- [1] A. Ferrero, F. Gazzola, *Existence of solutions for singular critical growth semilinear elliptic equations*, Journal of Differential Equations 177, 2001, 494-522.
- [2] A. Ferrero, F. Gazzola, *On subcriticality assumptions for the existence of ground states of quasilinear elliptic equations*, Advances in Differential Equations 8, 2003, 1081-1106
- [3] A. Ferrero, F. Gazzola, *Asymptotic behavior of ground states of quasilinear elliptic problems with two vanishing parameters, part III*, Journal of Differential Equations 198, 2004, 53-90
- [4] A. Ferrero, *On the solutions of quasilinear elliptic equations with a polynomial-type reaction term*, Advances in Differential Equations 9, 2004, 1201-1234
- [5] A. Ferrero, F. Gazzola, T. Weth, *On a fourth order Stekloff eigenvalue problem*, Analysis 25, 2005, 315-332
- [6] A. Ferrero, *Least energy solutions for critical growth equations with a lower order perturbation*, Advances in Differential Equations 11, 2006, 1167-1200
- [7] A. Ferrero, C. Saccon, *Existence and multiplicity results for semilinear equations with measure data*, Topological Methods in Nonlinear Analysis 28, 2006, 285-318
- [8] A. Ferrero, H.C. Grunau, *The Dirichlet problem for supercritical biharmonic equations with power-type nonlinearity*, Journal of Differential Equations 234, 2007, 582-606

- [9] A. Ferrero, F. Gazzola, T. Weth, *Positivity, Symmetry and uniqueness for minimizers of second order Sobolev inequalities*, Annali di Matematica Pura e Applicata 186, n. 4, 2007, 565-578
- [10] A. Ferrero, C. Saccon, *Existence and multiplicity results for semilinear elliptic equations with measures and jumping nonlinearities*, Topological Methods in Nonlinear Analysis 30, 2007, 37-66
- [11] A. Ferrero, F. Gazzola, H.-Ch. Grunau, *Decay and eventual local positivity for biharmonic parabolic equations*, Discrete and Continuous Dynamical Systems and Applications 21, n. 4, 2008, 1129-1157
- [12] A. Ferrero, H.-Ch. Grunau, P. Karageorgis, *Supercritical biharmonic equations with power-type nonlinearity*, Annali di Matematica Pura e Applicata 188, n. 1, 2009, 171-185
- [13] D. Bucur, A. Ferrero, F. Gazzola, *On the first eigenvalue of a fourth order Steklov problem*, Calculus of Variations and Partial Differential Equations 35, 2009, 103-131
- [14] A. Ferrero, G. Warnault, *On solutions of second and fourth order elliptic equations with power-type nonlinearities*, Nonlinear Analysis 70, 2009, 2889-2902
- [15] A. Ferrero, C. Saccon, *Multiplicity results for a class of asymptotically linear elliptic problems with resonance and applications to problems with measure data*, Advanced Nonlinear Studies 10, 2010, 433-479
- [16] V. Felli, A. Ferrero, S. Terracini, *Asymptotic behavior of solutions to Schrödinger equations near an isolated singularity of the electromagnetic potential*, Journal of the European Mathematical Society 13, 2011, 119-174
- [17] E. Berchio, A. Ferrero, F. Gazzola, P. Karageorgis, *Qualitative behavior of global solutions to some nonlinear fourth order differential equations*, Journal of Differential Equations 251, 2011, 2696-2727
- [18] E. Berchio, A. Farina, A. Ferrero, F. Gazzola, *Existence and stability of entire solutions to a semilinear fourth order elliptic problem*, Journal of Differential Equations 252, 2012, 2596-2616
- [19] V. Felli, A. Ferrero, S. Terracini, *On the behavior at collisions of solutions to Schrodinger equations with many-particle and cylindrical potentials*, Discrete and Continuous Dynamical Systems 32, 2012, 3895-3956
- [20] V. Felli, A. Ferrero, S. Terracini, *A note on local asymptotics of solutions to singular elliptic equations via monotonicity methods*, Milan Journal of Mathematics 80, 2012, no. 1, 203-226
- [21] V. Felli, A. Ferrero, *Almgren-type monotonicity methods for the classification of behavior at corners of solutions to semilinear elliptic equations*, Proceedings of the Royal Society of Edinburgh Sect. A 143, 2013, no. 5, 957-1019
- [22] E. Berchio, A. Ferrero, G. Grillo, *Stability and qualitative properties of radial solutions of the Lane-Emden-Fowler equation on Riemannian models*, Journal de mathématiques pures et appliquées, 102, 2014, no. 1, 1-35
- [23] V. Felli, A. Ferrero, *On semilinear elliptic equations with borderline Hardy potentials*, Journal d'Analyse Mathématique 123, 2014, 303-340
- [24] A. Ferrero, F. Gazzola, *A partially hinged rectangular plate as a model for suspension bridges*, accepted for publication in Discrete and Continuous Dynamical Systems"
- [25] A. Farina, A. Ferrero, *Existence and stability properties of entire solutions to the polyharmonic Equation $(-\Delta)^m u = e^u$ for any $m \geq 1$* , preprint 2014

[26] E. Berchio, A. Ferrero, M. Vallarino *Partial symmetry and existence of least energy solutions to some nonlinear elliptic equations on Riemannian models*, preprint 2014

[27] E. Berchio, A. Ferrero, F. Gazzola *Structural instability of nonlinear plates modelling suspension bridges: mathematical answers to some long-standing questions*, preprint 2015

Books:

[1] A. Ferrero, F. Gazzola, M. Zanotti, *Elementi di Analisi Superiore per la Fisica e l'Ingegneria*, Società Editrice Esculapio, first edition December 2007, second edition February 2010.

[2] A. Ferrero, F. Gazzola, M. Zanotti, *Elements of Advanced Mathematical Analysis for Physics and Engineering*, Società Editrice Esculapio, 2013.

Seminars at national and international conferences:

- Title: *Asymptotic behavior of ground states of quasilinear elliptic problems with two vanishing parameters.*
Conference: *Stationary and Evolution Problems*, 2-4/9/2002, Grado (Italy).
- Title: *Asymptotic behavior of ground states of quasilinear elliptic problems with two vanishing parameters.*
Conference: *Fourth International Conference on Dynamic Systems and Applications*, 21-24/5/2003, Morehouse College, Atlanta (U.S.A.).
- Title: *On solutions of quasilinear elliptic equations with a polynomial reaction term depending on two parameters.*
Conference: *XVII congresso U.M.I.*, 8-13/9/2003, Milano (Italy).
- Title: *On solutions of quasilinear elliptic equations with a polynomial reaction term depending on two parameters.*
Conference: *IV Turin Fortnight on Nonlinear Analysis*, 30/9/2003-3/10/2003, Torino (Italy).
- Title: *Esistenza di funzioni minimizzanti per funzionali con un termine a crescita critica.*
Conference: *Giornate di lavoro su questioni di Teoria Geometrica della Misura e Calcolo delle Variazioni*, 30/1/2005-4/2/2005, Levico (Italy).
- Title: *Least energy solutions for critical growth equations with a lower order perturbation.*
Conference: *Nonlinear and Parabolic Problems II*, 1-3/9/2005, Grado (Italy).
- Title: *Existence and multiplicity results for semilinear equations with measure data.*
Conference: *School in Nonlinear Analysis and Calculus of Variations Dedicated to Giovanni Prodi for his 80th birthday*, 17-22/10/2005, Pisa (Italy).
- Title: *Sugli autovalori del problema di Stekloff biarmonico.*
Conference: *Giornate di lavoro su questioni di Teoria Geometrica della Misura e di Calcolo delle Variazioni*, 5-10/2/2006, Levico (Italy).
- Title: *Existence and multiplicity results for semilinear equations with measure data.*
Conference: *AIMS' Sixth conference on Dynamical Systems, Differential Equations and Applications*, 25-28/6/2006, Poitiers (France).

- Title: *Sulle soluzioni di un problema ellittico del quart'ordine con nonlinearità di tipo potenza.*
Conference: *Convessità e disuguaglianze geometriche*, January 2007, Firenze (Italy).
- Title: *Supercritical biharmonic equations with power-type nonlinearity.*
Conference: *Liouville Theorems and Detours*, 18-24/5/2008, Cortona (Italy).
- Title: *Esistenza e stabilità di soluzioni intere per equazioni ellittiche del secondo e del quart'ordine.*
Conference: *XIX congresso U.M.I.*, 12-17/9/2011, Bologna (Italy).
- Title: *On the spectrum of the Steklov eigenvalue problem.*
Convegno: *Variational and Geometric Methods in PDE's*, 18/4/2012-21/4/2012, Ancona (Italy).
- Title: *Esistenza e stabilità delle soluzioni globali di un'equazione del quart'ordine con non linearità esponenziale.*
Conference: *Equazioni Differenziali alle Derivate Parziali*, 13/9/2012-15/9/2012, Milano (Italy).
- Title: *Semilinear elliptic equations with borderline potentials.*
Dipartimento di Matematica e Applicazioni, Università degli Studi di Milano-Bicocca, 15-19/4/2013.
- Title: *Equazioni evolutive del quart'ordine quali modelli per problemi connessi a ponti sospesi.* Dipartimento di Matematica Pura e Applicata, Università degli Studi di Padova, 5-9/5/2014.
- Title *Existence and stability properties of entire solutions to a polyharmonic equation with exponential nonlinearity.*
Conference: *10th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, 7-11/7/2014, Madrid (Spain).
- Title: *A nonlinear fourth order evolution equation modeling a suspension bridge.*
Conference: *10th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, 7-11/7/2014, Madrid (Spain).

Participation to conferences:

- Conference: *Problèmes non linéaires avec perte de compacité: perspectives et applications*, October 2009, Marseille (France).
- Conference: *Nonlinear differential equations*, 26/9/2010-1/10/2010, Verbania (Italy).
- Conference: *Variational and perturbative methods for nonlinear differential equations Venice*, 20/1/2011-22/1/2011, Venezia (Italy).
- Conference: *Higher order equations in Geometry and Physics*, 30/5/2011-2/6/2011, Trieste (Italy).
- Conference: *Workshop on Nonlinear Partial Differential Equations on the occasion of the sixtieth birthday of Patrizia Pucci*, 28/5/2012-1/6/2012, Perugia (Italy).

- Conference: *Nonlinear Elliptic and Parabolic Partial Differential Equations*, 19-21/6/2013, Milano (Italy).
- Conference: *First Joint International Meeting RSME-SCM-SEMA-SIMAI-UMI*, 30/6/2014-4/7/2014, Bilbao (Italy).

Conferences Organization:

- Title: *The first Bicocca Junior Workshop on Nonlinear PDEs and Variational Methods*, in collaboration with Veronica Felli and Simone Secchi, 18/6/2009-19/6/2009, Milano (Italy).
- Special Session Title: *Nonlinear stationary and evolution partial differential equations and their applications*.
Conference: *First Joint International Meeting RSME-SCM-SEMA-SIMAI-UMI*, 30/6/2014-4/7/2014, Bilbao (Spain).
- Title: *Spectral theory and shape optimization problems for elliptic PDEs*, in collaboration with Laura Abatangelo and Veronica Felli, 9/2/2015-13/2/2015, Milano (Italy).

Editorial activity:

- Member of the Editorial Board of *Arab Journal of Mathematical Sciences - Elsevier*

Research visits abroad:

- 4/7/2005-16/7/2005: Department of Mathematics of the University of Giessen (Germany).
- 13/3/2006-17/3/2006: Department of Mathematics of the Otto-von-Guericke University, Magdeburg (Germany).
- 7/9/2006-12/9/2006: Department of Mathematics of the Otto-von-Guericke University, Magdeburg (Germany).
- 16/9/2007-22/9/2007: Department of Mathematics of the Otto-von-Guericke University, Magdeburg (Germany).
- 25/9/2011-30/9/2011: Department of Mathematics of the Otto-von-Guericke University, Magdeburg (Germany).

Research projects:

- Project P.R.I.N. 2004: *Calcolo delle Variazioni*.
Principal investigator: Luigi Ambrosio.
- Project P.R.I.N. 2006: *Equazioni alle derivate parziali e disuguaglianze funzionali: aspetti quantitativi, proprietà geometriche e qualitative, applicazioni*.
Principal investigator: Andrea Cianchi.
- Project P.R.I.N. 2008: *Aspetti geometrici delle equazioni alle derivate parziali e questioni connesse*.
Principal investigator: Andrea Cianchi.

- Project P.R.I.N. 2012: *Equazioni alle derivate parziali di tipo ellittico e parabolico: aspetti geometrici, disuguaglianze collegate, e applicazioni.*
Principal investigator: Andrea Cianchi.
- Supervisor of the local unity of Milano for the G.N.A.M.P.A. project 2009: *Soluzioni di equazioni alle derivate parziali: aspetti analitici e geometrici.*
Principal investigator: Carlo Nitsch.
- Supervisor of the local unity of Milano for the G.N.A.M.P.A. project 2010: *Equazioni alle derivate parziali, funzionali variazionali e disuguaglianze geometrico-analitiche.*
Principal investigator: Paolo Salani.
- Principal investigator of the G.N.A.M.P.A. project 2011: *Aspetti geometrici e qualitativi di equazioni a derivate parziali.*
- Project G.N.A.M.P.A. 2012: *Equazioni alle derivate parziali con singolarità: esistenza ed analisi qualitativa delle soluzioni.*
Principal investigator: Veronica Felli.
- Project G.N.A.M.P.A. 2014: *Stabilità spettrale e analisi asintotica per problemi singolarmente perturbati.*
Principal investigator: Laura Abatangelo.
- Vigoni Italy-Germany project 2005-2006: Topological and geometrical methods in nonlinear higher order elliptic equations and related (second order) parabolic problems, supported by C.R.U.I. (Roma) and D.A.A.D. (Bonn).

Referee activity:

Referee for the journals: Advanced Nonlinear Studies, Analysis and Applications, Annali di Matematica Pura e Applicata, Applicable Analysis, Calculus of Variations and Partial Differential Equations, Communications on Pure and Applied Analysis, Differential Equations and Applications, Discrete and Continuous Dynamical Systems A, Discrete and Continuous Dynamical Systems - S, Electronic Journal of Differential Equations, Journal of Applied Analysis, Journal of Differential Equations, Journal of Mathematical Analysis and Applications, Journal of the Korean Mathematical Society, International Journal of Differential Equations, Mathematical Methods in the Applied Sciences, Mathematische Annalen, Mathematische Nachrichten, Monatshefte für Mathematik, Nonlinear Analysis Series A: Theory, Methods & Applications, Nonlinear Analysis Series B: Real World Applications, Proceedings of the London Mathematical Society, Proceedings of the Royal Society of Edinburgh A, Nonlinear Differential Equations and Applications, Science China Mathematics, Taiwanese Journal of Mathematics.

Teaching:

- Tutorial: “Analisi Matematica A e Geometria”, Laurea in Ingegneria Biomedica, Politecnico di Milano, 2002/2003.
- Tutorial: “Calcolo 3”, Laurea in Matematica, Università degli Studi del Piemonte Orientale, 2002/2003.
- Tutorial: “Analisi Matematica A e Geometria”, Laurea in Ingegneria Biomedica, Politecnico di Milano, 2003/2004.

- Tutorial: “Equazioni Differenziali”, Laurea in Ingegneria Elettronica, Politecnico di Milano, 2003/2004.
- Tutorial: “Analisi Matematica A e Geometria”, Laurea in Ingegneria Biomedica, Politecnico di Milano, 2004/2005.
- Tutorial: “Analisi Matematica 1”, Laurea in Matematica, Università degli Studi di Milano-Bicocca, 2007/2008.
- Tutorial: “Matematica 1”, Laurea in Scienze e Tecnologie per l’Ambiente, Università degli Studi di Milano-Bicocca, 2007/2008.
- Tutorial: “Calcolo Numerico”, Laurea in Scienze dei Materiali, Università degli Studi di Milano-Bicocca, 2007/2008.
- Tutorial: “Analisi Matematica 1”, Laurea in Matematica, Università degli Studi di Milano-Bicocca, 2008/2009.
- Tutorial: “Matematica 2”, Laurea in Scienze e Tecnologie per l’Ambiente, Università degli Studi di Milano-Bicocca, 2008/2009.
- Tutorial: “Analisi Matematica 1”, Laurea in Matematica, Università degli Studi di Milano-Bicocca, 2009/2010.
- Tutorial: “Complementi di Analisi”, Laurea in Matematica, Università degli Studi di Milano-Bicocca, 2009/2010.
- Tutorial: “Analisi Matematica 1”, Laurea in Matematica, Università degli Studi di Milano-Bicocca, 2010/2011.
- Tutorial: “Matematica 2”, Laurea in Scienze dei Materiali, Università degli Studi di Milano-Bicocca, 2010/2011.
- Tutorial: “Analisi Matematica 1”, Laurea in Matematica, Università degli Studi di Milano-Bicocca, 2011/2012.
- Course: “Analisi Matematica 2”, Laurea in Matematica, Università degli Studi del Piemonte Orientale “Amedeo Avogadro”, 2011/2012.
- Course: “Analisi Nonlineare”, Laurea Magistrale in Matematica, Università degli Studi di Milano-Bicocca, 2011/2012.
- Course: “Analisi Matematica 1”, Laurea in Informatica, Università degli Studi del Piemonte Orientale “Amedeo Avogadro”, 2012/2013.
- Course: “Analisi Funzionale”, Laurea in Matematica, Università degli Studi del Piemonte Orientale “Amedeo Avogadro”, 2012/2013.
- Course: “Analisi Matematica 1”, Laurea in Informatica, Università degli Studi del Piemonte Orientale “Amedeo Avogadro”, 2013/2014.
- Course: “Analisi Matematica 1”, Laurea in Informatica sede di Alessandria, Università degli Studi del Piemonte Orientale “Amedeo Avogadro”, 2014/2015.
- Course: “Analisi Matematica 1”, Laurea in Informatica sede di Vercelli, Università degli Studi del Piemonte Orientale “Amedeo Avogadro”, 2014/2015.