Curriculum Vitae of Pierluigi Benevieri

February, 2019

Personal data

Born in Firenze (Italy) on June 27, 1966

Resident in São Paulo (Brazil)

Italian Nationality

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Passport number: YA5812294 (Italian passport)

Affiliation

Associated Professor (level 2) of Mathematical Analysis at Departamento de Matemática of the Instituto de Matemática e Estatística, Universidade de São Paulo, Rua do Matão 1010, 05508-90 São Paulo, SP, Brazil.

Research interests

Topological methods in nonlinear analysis and their applications to ordinary and functional differential equations. Theoretical aspects of topological degree theory involving linear and nonlinear Fredholm operators in Banach spaces, and the concept of orientation in infinite dimensional Banach or Hilbert spaces. Retarded functional differential equations on manifolds; existence and bifurcation of periodic solutions. Spectral flow of continuous families of Fredholm operators in Hilbert spaces and applications to Hamiltonian problems.

Education

M.Sc. in Mathematics (Italian Laurea) at Università di Firenze, Italy, in 1992. Thesis: *Risultati globali in teoria della biforcazione* [Global results in bifurcation theory] (Advisor Prof. M. Furi).

Ph.D. in Mathematics (Dottorato di Ricerca in Matematica) at Università di Firenze, Italy, in 1997. Thesis: *Recenti sviluppi nella teoria del grado topologico* [Recents developments in topological degree theory] (Advisor Prof. M. Furi).

Recent grants

2017, G.N.A.M.P.A.[1] grant: *Dinamica topologica, Sistemi hamiltoniani, teoria del controllo e applicazioni*

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[1]It is a national italian public grant. Gnampa is "gruppo nazionali analisi matematica, probabilità e applicazioni"

[Dynamical systems, control theory and application] (Principal investigator: Prof. L. Zampogni.)

2016, G.N.A.M.P.A.[2] grant: *Dinamica topologica, sistemi hamiltoniani e teoria del controllo* [Topological dynamics, Hamiltonian systems and Control Theory] (Principal investigator: Prof. R. Fabbri.)

2015, G.N.A.M.P.A. grant: *Dinamiche non autonome, sistemi hamiltoniani e teoria del controllo.* [Nonautonomous dynamics, Hamiltonian systems and Control Theory]. (Principal investigator: Prof. M. Spadini.)

2014, G.N.A.M.P.A. grant: *Dinamiche non lineari, sistemi Hamiltoniani e controllo ottimo.* [Nonlinear dynamics, Hamiltonian systems and optimal control] (Principal investigator: Prof. L. Poggiolini.)

2013 FAPESP[3] grant to invite visiting professor, n. 2012/22926-0: *The method of guiding functions in differential equations and inclusions.* Visiting professor at University of São Saulo: Prof. Pietro Zecca, Università di Firenze, Italia.

2011-2013, FAPESP grant, n. 2010/20727-4: *Existence and bifurcation of solutions for some nonlinear differential equations: a topological approach.* (Principal investigator)

2010-2013 CNPq[4] grant "Produtividade em pesquisa", n. 313030/2009-0: *Topological methods in differential equations.*

2011, G.N.A.M.P.A. grant: *Equazioni differenziali non lineari e inclusioni differenziali: analisi qualitativa e applicazioni* [Nonlinear differential equations and differential inclusions: qualitative analysis and applications.] (Principal investigator: Prof. S. Matucci).

2009-2011, P.R.I.N.[5] grant: *Comportamento qualitativo di soluzioni di equazioni differenziali ordinarie (con eventuale ritardo).* [Qualitative behaviour of solutions of ordinary differential equations (with possible delay).] (Principal investigator: Prof. F. Zanolin).

Recent organization of conferences and seminars

1st South American Workshop on Integral and Differential Equations - SAWIDE, Universidade de São Paulo, São Paulo, Brazil, February 26 to 28, 2018. Organization with Prof. Pedro Lopes, Prof. Sergio Muniz Oliva and Prof. Marcone Correa Pereira.

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[2]It is a national italian public grant. Gnampa is "gruppo nazionali analisi matematica, probabilità e applicazioni"

[3]Fapesp is Fundação amparo à pesquisa do Estado de São Paulo; it is a brazilian public agency of support to research

[4]CNPq is Conselho Nacional de Desenvolvimento Científico e Tecnolǵico; it is a brazilian public agency of support to research

[5]Prin is Progetti di Ricerca di Interesse Nazionale, it is a national italian public grant

1st Joint meeting Brazil-Italy in Mathematics, IMPA, Rio de Janeiro, August 29 - September 2, 2016. Organization with Prof. Marco Spadini and Prof. Jaqueline Masquita of special session 9: *Topological and impulsive methods for the qualitative analysis of differential equations, differential inclusions and difference equations*.

10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, University of Madrid, July 7/11, 2014. Organization with Prof. Marco Spadini of special session 67: *Topological Methods for the Qualitative Analysis of Differential Equations and Inclusions*.

8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden, Germany, May 25/28, 2010, at the Dresden University of Technology. Organization with Prof. Marco Spadini of special session 61: *Topological Methods for the Qualitative Analysis of Differential Equations*.

Publications: papers

1. P. Amster, P. Benevieri, J. Haddad, *A Global Bifurcation Theorem for Critical Values in Banach Spaces*, to appear on Annali di Matematica Pura e Applicata.

2. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *On General Properties of N-th order Retarded Functional Differential Equations*, Rendiconti dell'Istituto di Matematica dell'Università di Trieste, 49, (2017), 73–93.

3. P. Benevieri, P. Zecca, *Topological degree and atypical bifurcation results for a class of multivalued perturbations of Fredholm maps in Banach spaces*, Fixed Point Theory, 18, 1 (2017), 85-106.

4. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *On the persistence of the eigenvalues of a perturbed Fredholm operator of index zero under nonsmooth perturbations*, Zeitschrift für Analysis und ihre Anwendungen, 36, 1 (2017), 99-128.

5. P. Benevieri, A. Calamai, M. Furi, *On the degree for quasi-Fredholm maps: its uniqueness and its effective extension of the Leray–Schauder degree*, Topol. Methods in Nonlinear Analysis, 46, 1 (2015), 401–430.

6. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *Global Continuation of Forced Oscillations of Retarded Motion Equations on Manifolds*, J. Fixed Point Theory Appl., 16 (2014), 273-300.

7. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *Global Continuation of Periodic Solutions for Retarded Functional Differential Equations on Manifolds*, Bound. Value Probl., 2013, 2013:21.

8. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *A continuation result for forced oscillations of constrained motion problems with infinite delay*, Advanced Nonlinear Studies, 13, 2 (2013), 263–278.

9. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *On General Properties of Retarded Functional Differential Equations on Manifolds*, Discrete Contin. Dynam. Syst., 33, 1 (2013), 27-46.

10. P. Benevieri, A. Calamai, M. Furi and M.P. Pera, *On the existence of forced oscillations of retarded functional motion equations on a class of topologically nontrivial manifolds*, Rend. Istit. Mat. Univ. Trieste, 44 (2012), 1-13.

11. P. Benevieri, M. Furi, *On the uniqueness of the degree for nonlinear Fredholm maps of index zero between Banach manifolds*, Communications in Applied Analysis, 15, n. 2,3 and 4 (2011), 203–216.

12. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *On the existence of forced oscillations for the spherical pendulum acted on by a retarded periodic force*, Journal of Dynamics and Differential Equations, 23, n. 3 (2011), 541-549.

13. P. Benevieri, A. Calamai, *A Borsuk-type theorem for some classes of perturbed Fredholm maps*, Topol. Methods Nonlinear Anal., 35, n. 2 (2010), 379-394.

14. P. Benevieri, P. Piccione, *On a formula for the spectral flow and its applications*, Mathematische Nachrichten, 283, n. 5 (2010), 659-685.

15. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *Fast Forced Oscillations for Constrained Motion Problems with Delay*, Commun. Appl. Anal. 13 (2009), no. 4, 497–508.

16. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *On Forced Fast Oscillations for Delay Differential Equations on Compact Manifolds*, J. Differential Equations 246 (2009), 1354–1362.

17. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *Delay differential equations on manifolds and applications to motion problems for forced constrained systems*, Zeitschrift für Analysis und ihre Anwendungen, 28 (2009), 451–474.

18. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *Retarded functional differential equations on manifolds and applications to motion problems for forced constrained systems*, Adv. Nonlinear Stud. 9 (2009), 199–214.

19. P. Benevieri, A. Calamai *Bifurcation results for a class of perturbed Fredholm maps*, Fixed Point Theory Appl. 2008, Art. ID 752657, 19 pp.

20. P. Benevieri, J.M. do Ó, E.S. Medeiros, *Periodic Solutions for Nonlinear Equations with Mean Curvature-like Operators*, Applied Mathematics Letters, 2007; 20 (5), 484–492.

21. P. Benevieri, J.M. do Ó, E.S. Medeiros, *Nonlinear Systems with Mean Curvature-like Operators*, Fixed point theory and its applications, Banach Center Publ., 77, Polish Acad. Sci., Warsaw, 2007, 35–48.

22. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *Global Branches of Periodic Solutions for Forced Delay Differential Equations on Compact Manifolds*, J. Differential Equations, 233, (2007), 404–416.

23. P. Benevieri, A. Calamai, M. Furi, M.P. Pera, *Forced oscillations for delay motion equations on manifolds*, Electron. J. Diff. Eqns., vol. 2007 (2007), No. 62, 1–5.

24. P. Benevieri, J.M. do Ó, E.S. Medeiros, *Periodic Solutions for Nonlinear Systems with Mean Curvature-like Operators*, Nonlinear Analysis: Theory Methods and Applications, 65, 7 (2006), 1462–1475.

25. P. Benevieri, M. Furi, *A degree theory for locally compact perturbations of Fredholm maps in Banach spaces*, Abstr. Appl. Anal. 2006, Art. ID 64764, 20 pp.

26. P. Benevieri, A. Calamai, M. Furi, *A degree theory for a class of perturbed Fredholm maps, II*, Fixed Point Theory Appl. 2006, Art. ID 27154, 20 pp.

27. P. Benevieri, A. Calamai, M. Furi, *A degree theory for a class of perturbed Fredholm maps*, Fixed Point Theory and Applications, 2 (2005), 185–206.

28. P. Benevieri, M. Furi, M. Martelli, M.P. Pera, *Atypical bifurcation without compactness*, Z. Anal. Anwendungen 24 (2005), no. 1, 137–147.

29. P. Benevieri, A. Gavioli, M. Villarini, *Existence of Periodic Orbits for Vector Fields via Fuller Index andthe Averaging Method*, Electron. J. Diff. Eqns., Vol. 2004 (2004), No. 128, 1–14.

30. P. Benevieri, M. Furi, M.P. Pera, M. Spadini, *About the sign of oriented Fredholm operators between Banach spaces*, Z. Anal. Anwendungen 22 n. 3, (2003), 619–645.

31. P. Benevieri, M. Furi, M.P. Pera, *On the Product formula for the oriented degree for Fredholm maps of index zero between Banach manifolds*, Nonlinear Anal. 48 (2002), no. 6, Ser. A: Theory Methods and Appl., 853–867.

32. P. Benevieri, *Orientation and degree for Fredholm maps of index zero between Banach spaces*, Non-linear analysis and its applications to differential equations (Lisbon, 1998), 201–213, Progr. Nonlinear Differential Equations Appl., 43, Birkhauser Boston, Boston, MA, 2001.

33. P. Benevieri, M, Furi, *Bifurcation results for families of Fredholm maps of index zero between Banach spaces*, Nonlinear analysis and its applications (St. John's, NF, 1999). Nonlinear Anal. Forum 6 (2001), no. 1, 35–47.

34. P. Benevieri, M. Furi, M.P. Pera, *The Invariance of Domain for C^1 Fredholm maps of index zero*, Recent trends in nonlinear analysis, 35–39, Progr. Nonlinear Differential Equations Appl., 40, Birkhauser, Basel, 2000.

35. P. Benevieri, M. Furi, *On the concept of orientability for Fredholm maps between real Banach manifolds*, Topol. Methods Nonlinear Anal., 16 (2000), n. 2, 279–306.

36. P. Benevieri, M. Furi, *A simple notion of orientability for Fredholm maps between Banach manifolds and degree theory*, Annales des sciences mathémathiques du Québec, 22, n. 2 (1998), 131–148.

37. P. Benevieri, *Recenti sviluppi nella teoria del grado topologico*, Boll. Unione Mat. Ital. Sez. A Mat. Soc. Cult. (8) 1 suppl. (1998), 81–84.

38. P. Benevieri, *Una rilettura di alcuni risultati globali in teoria della biforcazione*, Boll. Unione Mat. Ital. A (7) 9 n. 2 (1995), 287–297.

Publications: books

1. P. Benevieri, *Esercizi di Analisi Matematica 1*, De Agostini, Novara, Italy, 2007, vii+256 pp.

2. A. Villanacci, A. Battinelli, P. Benevieri, L. Carosi, *Differential Topology and General Equilibrium with Complete and Incomplete Markets*, Kluwer Academic Publishers, Dordrecht, 2002, xxxii+473 pp.

List of recent post-graduate students

1. Jeovanny de Jesus Muentes Acevedo. Mestrado, Universidade de São Paulo. Title of the project: *O fluxo espectral de caminhos de operadores de Fredholm auto-adjuntos em espaços de Hilbert*. 2010–2013.

2. Adriano Leandro da Costa Peixoto. Mestrado, Universidade de São Paulo. Title of the project: *Grau topológico*. 2010–2013.

3. Dionicio Santos Pastor Dallos. Ph.D., Universidade de São Paulo. Title of the project: *Resultados de existência para alguns problemas não lineares com valores na fronteira de equações diferenciais* 2014–2017.

4. Gilberto Camargo. Ph.D., Universidade de São Paulo. 2015 – in progress.

5. Felipe Felix. Ph.D., Universidade de São Paulo. 2016 – in progress.

Long period visits to research centers and universities

1. Visit to Department of Mathematics, Rutgers University, invited by Prof. Roger Nussbaum, since march, 24 to june, 14, 1999.

2. Visit to Department of Mathematics, Universidade Federal da Paraiba, UFPB, Brasil, invited by Prof. João Marcos do Ó, since february, 20 to june 6, 2005.

3. Visit to Department of Mathematics, Universidade de São Paulo, invited by Prof. Paolo Piccione, since september, 1, 2006 to may, 31, 2007.

3. Visit to Department of Mathematics, Università di Firenze, invited by Prof. Massimo Furi, since january 1 to july 31, 2012.

Main speaker talks at international conferences

1. *Existence and bifurcation results for periodic solutions of retarded functional differential equations on manifolds*, International congress "Métodos topológicos em equações diferenciais e topologia simplética", Universidade de Campinas, UNICAMP, Brasil; august 1-3, 2012.

2. *On the oriented degree for multivalued compact perturbations of Fredholm maps in Banach spaces*, International Workshop "Topological and Variational Methods for ODEs, dedicated to Massimo Furi Professor Emeritus at the University of Florence", Università di Firenze, Italy; june, 3-4, 2014.

3. *Bifurcation of periodic solutions for retarded functional differential equations on manifolds*, IX international congress GAFEVOL, Universidade de São Paulo, Brasil, september, 16-18, 2014.

4. *Nonlinear eigenvalue persistence problems for perturbed Fredholm operators*, X international congress GAFEVOL, Universidad de Santiago de Chile, november 23-25, 2016.

5. *On general properties of n-th order retarded functional differential equations*, IX Workshop de Verão em Matemática, Universidade de Brasília, Brasil, february, 13-17, 2017.

6. *A global bifurcation theorem for critical values of C^1 maps in Banach spaces*, X Workshop de Verão em Matemática, Universidade de Brasília, Brasil, february, 19-23, 2018.

7. *Continuation results for retarded functional differential equations on manifolds*, First South American Workshop on Integral and Differential Equations, IME-USP, february, 26-28, 2018.

8. *Retarded functional differential equations on manifolds: existence and bifurcation results*, Workshop on Extra Ordinary Differential Equations, Universidade de Lisboa, Foz de Arelho, March, 28-30, 2018.

9. *Global bifurcation for critical values of special maps in Banach and Hilbert spaces*, XII Congress GAFEVOL, Universidad de Santiago, Chile, November 14-16, 2018.

Other talks and seminars at national or international congresses

1. *An extension of Brouwer degree to maps between noncompact nonorientable manifolds*, Convegno annuale del gruppo PRIN "Equazioni differenziali ordinarie e applicazioni", Bressanone, Italia 29-31/5/1995.

2. *A concept of topological degree for finite-dimensional nonorientable manifolds*, XV Congresso nazionale dell'Unione Matematica Italiana (UMI), Padova, Italia 11-16/9/1995.

3. *An extension of the Brouwer degree to maps between not necessarily orientable differentiable manifolds*, international congress "Nonlinear analysis and Boundary Value problems for Ordinary Differential Equations", CISM, Udine, Italia, 2-6/10/1995.

4. *A simple extension of the Brouwer degree to maps between not necessarily orientable manifolds*, international workshop "Topological methods and dynamical systems", Firenze, Italia, 3-4/5/1996.

5. *A concept of degree for maps between Banach manifolds*, Convegno annuale del gruppo PRIN "Equazioni diferenziali ordinarie e aplicazioni", Bressanone, Italia, 25-27/5/1997.

6. *A concept of degree for Fredholm maps between Banach manifolds*, international meeting Indam "Topological Fixed Point Theory and Topological Methods in Nonlinear Analysis", Cortona, Italia, 14-20/6/1997.

7. *Orientation and degree for Fredholm maps of index zero between Banach spaces*, international school "Nonlinear Analysis and its Applications to Differential Equations", CMAF, Universidade de Lisboa, september-october, 1998.

8. *Topological methods for delay differential equations*, XVI Congresso nazionale dell'Unione Matematica Italiana (UMI), Napoli, Italia, 13-18/9/1999.

9. *On the product formula for the oriented degree for Fredholm maps between Banach manifolds*, international congress "Fixed Point Theory and its Applications", Technion University, Haifa, Israel, 13-19/6/2001.

10. *Orientation and sign for Fredholm operators between Banach spaces*, international workshop "Qualitative Analysis of Ordinary Differencial Equations", Trieste, Italia, 10/9/2002.

11. *Degree for locally compact perturbations of Fredholm maps in Banach spaces*, international congress "Fixed Point Theory and its Applications", Valencia, Spain, 13-19/7/2003.

12. *A degree theory for a class of perturbed Fredholm maps*, international congress "Fixed Point Theory and its Applications, in honour of Prof. Andrzej Granas on the occasion of his 75th birthday", Montreal, Canada, 16-20/8/2004.

13. *Periodic solutions for nonlinear systems with mean curvature-like operators*, international congress "Fixed Point Theory and its Applications, in memory of Jim Dugundji", Bedlewo, Poland, 1-5/8/2005.

14. *Periodic solutions for nonlinear systems with mean curvature-like operators*, international workshop "V Turin fortnight on Nonlinear Analysis", Torino, Italia, 13-16/9/2005.

15. *Periodic solutions for nonlinear systems with mean curvature-like operators*, international workshop "Trends in Differential Equations and Dynamical Systems", Reggio Emilia, Italia, 29-30/9/2005.

16. *Global Branches of Periodic Solutions for Forced Delay Differential Equations on Compact Manifolds*, international workshop "Dynamical Systems and Nonautonomous Differential Equations", Firenze, Italia, 16-17/3/2006.

17. *On the Periodic Solutions for Forced Delay Differential Equations on Compact Manifolds*, 6th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Poitiers, France 25-28/6/2006.

18. *Bifurcation of periodic solutions for delay differential equations on compact manifolds*, ICMC Summer Meeting in Differential Equations, USP, São Carlos, 12-14/2/2007.

19. *Bifurcation results for delay differential equations on manifolds*, III Mini-Simpósio em Métodos Topológicos em Equações Diferenciais, UNICAMP, Campinas, 15-16/3/2007.

20. *On the spectral flow for self-adjoint Fredholm operators*, international congress "Topological Methods, Differential Equations, and Dynamical Systems, dedicated to the 65th birthday of Professor Massimo Furi", Firenze, Italia, 13-16/6 2007.

21. *Retarded functional differential equations on manifolds*, ICMC Summer Meeting on Differential Equations, USP São Carlos, 8-10/2/2010.

22. *Retarded functional differential equations on manifolds*, 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden, Germany, 25-28/5/2010, Dresden University of Technology e AIMS, The American Institute of Mathematical Sciences.

23. *Retarded functional differential equations on manifolds*, Emerging Problems in Nonlinear Analysis and Differential Equations: Advances in Theory and Applications, dedicated to the retirement of Professor J.R.L. Webb, 1-4/6/2010, Glasgow University.

24. *Existence and bifurcation of periodic solutions of retarded functional differential equations on manifolds*, ICMC Summer Meeting on Differential Equations, 2013 Chapter, celebrating the 70th birthday of Hildebrando Munhoz Rodrigues, ICMC-USP, São Carlos, 4-7/2/2013.

25. *On the uniqueness of topological degree in infinite dimension*, Symposium in Real Analysis XXXVII, ICMC-USP, São Carlos, 3-6/6/2013.

26. *A concept of topological degree for multivalued compact perturbations of Fredholm maps*, ICMC Summer Meeting on Differential Equations, 2014 Chapter, celebrating the 80th birthday of Djairo Guedes de Figueiredo, ICMC-USP, São Carlos, 3-7/2/ 2014.

27. *A concept of degree for multivalued perturbations of Fredholm maps in Banach spaces and its applications to differential inclusions*, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, 7-11/7/2014.

28. *Topological methods and degree for compact multivalued perturbations of Fredholm maps in Banach spaces and applications*, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, 7-11/2/2014.

29. *Continuation results for retarded functional differential equations on manifolds*, ICMC Summer Meeting on Differential Equations, 2015 Chapter, ICMC-USP, São Carlos, 2-4/2/2015.

30. *First and second order retarded functional differential equations on manifolds: existence and bifurcations results*, IX Enama (Encontro nacional de Análise Matemática e Aplicações), Universidade Estadual do Oeste do Paraná, Cascavel-Paraná, 4-6/11/ 2015.

31. *On the persistence of the eigenvalues of a perturbed Fredholm operator*, 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, USA, 1-5/7/2016.

32. *On the eigenvalues of a perturbed Fredholm operator of index zero*, First meeting Brazil-Italy in Mathematics, IMPA, Rio de Janeiro, 29/8 - 2/9, 2016.

33. *Persistent eigenvalues and eigenvectors of a perturbed Fredholm operator*, X Enama, Universidade Federal Fluminense, Rio de Janeiro, 9-11/11/2016.

34. *On general properties of n-th order retarded functional differential equations*, international congress "New directions in nonlinear dynamical systems", in honor of Professor Russell Johnson, Università di Firenze, Italia, $31/1 - 3/2$, 2017.

35. *On general properties of n-th order retarded functional differential equations* ICMC Summer Meeting on Differential Equations, 2017 Chapter, ICMC-USP, São Carlos, 6-8/2/2017.

36. *On general properties of n-th order retarded functional differential equations*, VII WENLU - Workshop on Nolinear PDEs and Geometric Analysis, Universidade Federal da Paraiba, Brasil, February 20-24, 2018.

37. *Global persistence of the unit eigenvectors of nonlinear operators in Hilbert spaces*, International Workshop on Nonlinear Dynamical Systems and Functional Analysis - ICM 2018 Satellite Conference, Department of Mathematics, University of Brasília, August 13-16, 2018.

38. *Eigenvalue problems for Fredholm operators with set-valued perturbations*, ICMC Summer Meeting on Differential Equations – 2019 Chapter, ICMC-USP, February 4th - 6th.

Seminars on invitation

1. *Introduction to the theory of topological degree and applications*, 11/5/1998, Dipartimento di Matematica, Università di Cagliari, invited by Prof. A. Greco.

2. *On the concept of orientability for Fredholm maps between real Banach manifolds*, 30/4/1999, Department of Mathematics, Rutgers University, New Jersey, USA, invited by Prof. R.D. Nussbaum.

3. *Orientation and degree for Fredholm maps of index zero between Banach spaces*, 25/5/1999, Department of Mathematics, University of Maryland, USA, invited by Prof. P.M. Fitzpatrick.

4. *Topological methods in Analysis and degree*, 21/5/2004, Departimento de Matemática, Universidade Federal da Paraíba, PB, invited by Prof. J.M. do Ó.

5. *Introduction to topological degree and applications to differential equations*, 9 and 11/11/2004, CMAF, Universidade de Lisboa, Portugal, international project GRICES-CNR, invited by Prof. Alessandro Margheri.

6. *Topological degree theory and applications*, 4 e 18/10/2006, Departimento de Matemática, Universidade de São Paulo, SP, invited by Prof. P. Piccione.

7. *Teoria do grau topológico e aplicações às equações diferenciais*, Departimento de Matemática, Universidade de Campinas, SP, invited by Prof. Francisco Odair V. de Paiva, 21 e 23/5/2007.

8. *Flusso spettrale per curve di operatori di Fredholm autoaggiunti in spazi di Hilbert*; Dipartimento di Matematica, Università di Torino, invited by Prof Anna Capietto, 21/1/2008.

9. *Periodic solutions of retarded functional differential equations on manifolds*, 15/1/2010, Dipartimento di Matematica, Università di Firenze, invited by Prof. Andrea Colesanti, 15/1/2010.

10. *Equações diferenciais funcionais em variedades*, Departamento de Matemática, Universidade Federal de São Carlos, invited by Prof. Francisco Odair de Paiva, 20/2/2013.

11. *An introduction to the topological degree theory and its applications*, Departamento de Matemática, Universidade de Brasília, invited by Prof. Jaqueline Mesquita, 13/12/2016.

12. *Métodos topológicos em Análise não linear: teoria do grau e aplicações*, Departamento de Matemática, Universidade Federal do ABC, São Paulo, Brasil, invited by Prof. Juliana Pimentel, 11/4/2017.

Teaching activity
Graduate courses

1. *Topological Methods in Nonlinear Analyisis*; Ph.D. program in mathematics, Universidade de São Paulo, Brazil, 2007.

2. *Degree theory and applications*, Ph.D. program in mathematics, Universidade de São Paulo, Brazil, 2010.

3. *Fixed point index theory and periodic solutions of ODEs on manifolds* (with Prof. Marco Spadini); Ph.D. program in mathematics, Universidade de São Paulo, Brazil, 2011.

4. *Topological methods in nonlinear analysis: spectral flow and applications to differential equation*; Ph.D. program in mathematics, Università di Firenze, Italy, 2012.

5. *Introduction to Functional Analysis*; Ph.D. program in mathematics, Universidade de São Paulo, Brazil, 2013.

6. *Introduction to Functional Analysis*; Ph.D. program in mathematics, Universidade de São Paulo, Brazil, 2016.

Undergraduate courses

1. Various different courses in mathematical analysis at Engineering School of Università di Firenze, from 1996 to 2008.

2. Various different courses in mathematical analysis at Universidade de São Paulo, since 2009.

Other recent professional activities and information

1. Referee for a number of scientific journals.

2. Reviewer for mathscinet.

3. Referee for FAPESP projects.

4. Member of the Council of the Department of Mathematics (2010–2018) and of the Council of the Instituto de Matemática e Estatística (since 2913), Universidade de São Paulo and of the Council of Ph.D. program (2016-2018) of the Department of Mathematics, Universidade de São Paulo.

5. Member of selection boards of public contests, Ph.D. exams at public brazilian universities.

6. The following two papers

    (a) P. Benevieri, A. Calamai, M. Furi, M. Pera (2009): On Forced Fast Oscillations for Delay Differential Equations on Compact Manifolds. JOURNAL OF DIFFERENTIAL EQUATIONS, vol. 246, p. 1354-1362, ISSN: 0022-0396, doi: 10.1016/j.jde.2008.11.005;

    (b) P. Benevieri, A. Calamai, M. Furi, M. Pera (2007): Global Branches of Periodic Solutions for Forced Delay Differential Equations on Compact Manifolds. JOURNAL OF DIFFERENTIAL EQUATIONS, vol. 233, p. 404-416, ISSN: 0022-0396, doi: 10.1016/j.jde.2006.10.001.

have been evaluated as "excellent" by the national italian program VQR of the National Secretary of Education and University in 2010.