

CURRICULUM VITAE: Cristina PIGNOTTI

COORDINATES:

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- address: Dipartimento di Ingegneria e Scienze dell'Informazione e Matematica, Università di L'Aquila, Italy
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POSITIONS:

- Associate Professor, Università di L'Aquila, Italy, 2015–today;
- Research Associate, Università di L'Aquila, Italy, 2002–2015;
- INdAM Fellow, Università di Roma “Tor Vergata”, Italy, 2002;
- Research Contract, Università di Roma “La Sapienza”, Italy, 2001.

EDUCATION:

- PhD in Mathematics: 2001, Università di Roma “Tor Vergata”, Italy;
- Laurea in Matematica: 1994, Università di Camerino, Italy.

RESEARCH INTERESTS:

- Partial Differential Equations;
- Control theory;
- Models and applications.

ORGANISATION OF CONFERENCES AND EDITORIAL ACTIVITY:

- Scientific organizing committee: “Progetto Gnampa 2017 - Comportamento asintotico e controllo di equazioni di evoluzione non lineari”, Università di Firenze, Italy, October 13, 2017;
- Scientific organizing committee: “One Day on PDEs @GSSI”, GSSI, L'Aquila, Italy, May 20, 2015;
- Organizing committee: “Viscosity, metric and control theoretic methods in nonlinear PDEs”, Gaeta, Italy, September 27- October 1, 2004;
- Editorial board: *Abstract and Applied Analysis* (2012-today);
- Reviewer for *Mathematical Reviews*, since 2006;
- Referee for the journals *Acta Applicandae Mathematicae*, *Applicable Analysis*, *Applied*

Mathematics and Computation, Applied Mathematics Letters, Applied Mathematics and Optimization, Asymptotic Analysis, Automatica, Communication on Pure and Applied Analysis, Discrete and Continuous Dynamical Systems, Electronic Journal of Differential Equations, ESAIM: Control, Optimisation and Calculus of Variations, IMA Journal of Mathematical Control and Information, Journal of Differential Equations, Journal of Dynamical and Control Systems, Journal of Mathematical Analysis and Applications, Journal of Mathematical Physics, Mathematical Control and Related Fields, Mathematical Methods in the Applied Sciences, Networks and Heterogeneous Media, Nonlinear Analysis TMA, Nonlinear Differential Equations and Applications, Rendiconti dell'Istituto di Matematica dell'Università di Trieste, Revista Matematica Complutense, Systems and Control Letters, SIAM Journal on Control and Optimization, Siam Journal on Mathematical Analysis, Zeitschrift für Mathematik und Physik.

RESEARCH VISITS:

- June 2017: Institut de Mathématiques de Jussieu, Université Pierre et Marie Curie (Paris 6), Prof. H. Frankowska (1 week).
- May 2012: Mathematics Department, Université de Monastir, Prof. K. Ammari (1 week).
- March 2011: Academy of Mathematics and System Sciences, Chinese Academy of Sciences, Beijing, Prof. X. Zhang (1 week).
- May 2009: Mathematics Department, Université de Monastir, Prof. K. Ammari (1 week).
- June 2008: Université de Valenciennes, France, Prof. S. Nicaise (1 week).
- 2005 : “Professeur invité”, Université de Valenciennes, Prof. S. Nicaise (1 month May 2005 and 1 week December 2005).
- December 2004: Université de Valenciennes, Prof. S. Nicaise (1 week).
- October 1997: Institut de Recherche Mathématique Avancée, Université “Louis Pasteur” de Strasbourg, Prof. V. Komornik (1 week).

INVITED TALKS (SINCE 2009):

- “*Flocking estimates for Cucker-Smale models with time delay*”, **Workshop “Paths in Mathematical Control Theory”, Politecnico di Torino**, February 26-27, 2018;
- “*Flocking results for the Cucker-Smale model with time delay and hierarchical leadership*”, “**1st DECOD -Delays and Constraints in Distributed Parameters Systems**”, **Gif-sur-Yvette, France**, November 22-24, 2017;
- “*Asymptotic stability of evolution equations with time delay*”, **Workshop “Recent advances in PDEs”, Università Federico II, Napoli**, July 12-14, 2017;
- “*Energy decay estimates for abstract evolution equations with time delay*”, **Workshop “New Trends in Control Theory and PDEs”, INdAM, Roma**, July 3-7, 2017;
- “*Flocking results for the Cucker-Smale model with time delay*”, **Workshop “Differential Equations and Applications”, Bologna, Italy**, May 22-26, 2017;

- “*A stability result for the wave equation with Kelvin-Voigt damping and delay feedback*”, **SIMAI 2016, Invited Session “Analysis and control of degenerate evolution equations”**, Milano, September 13-16, 2016;
- “*On the Cucker-Smale model with time delay*”, **First Joint Meeting Brazil-Italy in Mathematics, Invited Session “Control and asymptotic of Nonlinear PDE Dynamics”**, Rio De Janeiro, August 29-September 2, 2016;
- “*Exponential stability of abstract evolution equations with time delay feedback*”, **Workshop “Optimal Control for Evolutionary PDEs and Related Topics”**, Cortona, Italy, June 20-24, 2016;
- “*Stabilization of viscoelastic wave equations with time delay*”, **Workshop “Contrôle de EDP et Applications”**, CIRM, Luminy, Marseille, November 9-13, 2015;
- “*Stability of wave equation with Kelvin-Voigt damping and dynamic boundary delay feedback*”, “**27th IFIP Conference on System Modelling and Optimization**”, Invited Session “**Well-posedness, control, and observability theories for partial differential equations**”, Sophia Antipolis, France, June 29-July 3, 2015;
- “*Stability results for the wave equation with intermittent damping*”, “**27th IFIP Conference on System Modelling and Optimization**”, Invited Session “**Oscillation, Degeneracy and Controllability**”, Sophia Antipolis, France, June 29-July 3, 2015;
- “*Stability results for a class of second-order evolution equations with intermittent delay*”, **Workshop “Evolution Equations: long time behavior and control”**, Chambéry, France, June 15-18, 2015;
- “*Exponential stability of damped evolution equations against small delay feedback*”, **Workshop “Control of Partial Differential Equations @GSSI”**, GSSI, L’Aquila, April 22-24, 2015;
- “*Exponential stability for abstract evolution equations with delay*”, **Workshop “PDE’s, Inverse Problems and Control Theory 2014”**, Bologna, September 15-19, 2014;
- “*Asymptotic stability for a class of semilinear evolution equations with time delay*”, “**The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications**”, Invited Session “**Analysis and control of nonlinear partial differential equation evolution systems**”, Madrid, July 7-11, 2014;
- “*Exponential stability for a viscoelastic wave equation with anti-damping/time delay*”, “**First Joint International Meeting RSME–SCM–SEMA–SIMAI–UMII**”, Invited Session “**Control of PDE: Theory, Numerics, and Applications**”, Bilbao, Spain, June 30-July 4, 2014;
- “*Stabilization of second-order evolution equations with intermittent time-delay*”, **Workshop “Controllability and networks”**, Roma, May 26-28, 2014;
- “*Stability results for Second-Order Evolution Equations with Switching Time-Delay*”, “**IFIP TC 7 Conference on System Modelling and Optimization**”, Invited Session “**Novel Directions in Control of Evolutionary PDE problems**”, Klagenfurt, Austria, September 8-13, 2013;

- “*Stabilization of second-order evolution equations with time delay*”, **Workshop “Differential Equations, Inverse Problems and Control Theory”**, Cortona, Italy, June 17-21, 2013;
- “*Asymptotic stability of second-order evolution equations with intermittent delay*”, **Workshop “PDEs, inverse problems and control theory”**, Bologna, July 16-20, 2012;
- “*Exponential stability of the wave equation with interior time delay*”, **Mathematics Department, Université de Monastir, Tunisia**, May 30, 2012;
- “*Stability results for wave equations with interior time delay*”, “**Conference of the European GDR Control of PDEs**”, Marseille, November 21-23, 2011;
- “*Feedback stabilization of wave equations with time delay*”, **Academy of Mathematics and System Sciences, Beijing**, April 1, 2011;
- “*Exponential stability of the strongly damped wave equation with boundary feedback laws with delay*”, “**PDE’s, semigroup theory and inverse problems**”, Bologna, September 1-4, 2010;
- “*Stabilità/instabilità dell’equazione delle onde con un termine di ritardo*”, **Politecnico di Torino**, February 23, 2010;
- “*Feedback boundary stabilization of wave equations with interior delay*”, “**First workshop of the European Research Group project - Control of Partial Differential Equations**”, Institut Henri Poincaré, Paris, October 14-16, 2009;
- “*Existence and exponential estimate for positive solutions of a class of semilinear elliptic equations*”, “**Septième journées des équations aux dérivées partielles Lille - Littoral - Valenciennes**”, Valenciennes, France, October 12-13, 2009;
- “*A uniform estimate for positive solutions of semilinear elliptic equations*”, **Workshop “Mathematical Challenges Motivated by Multi-Phase materials: Analytical, Stochastic and Discrete Aspects”**, Anogia, Creta, June 21-26, 2009.

PUBLICATIONS:

- [1] S. Nicaise and C. Pignotti,
“*Well-posedness and stability results for nonlinear abstract evolution equations with time delays*”,
Journal of Evolution Equations (2018), DOI 10.1007/s00028-018-0427-5, published online.
- [2] C. Pignotti,
“*Stability results for second-order evolution equations with memory and switching time-delay*”,
Journal of Dynamics and Differential Equations, Vol. 29 (2017), pp. 1309–1324.
- [3] G. Fusco, F. Leonetti, C. Pignotti,
“*On the asymptotic behavior of symmetric solutions of the Allen-Cahn equation in unbounded domains in \mathbb{R}^2* ”,
Discrete and Continuous Dynamical Systems, Vol 37 (2017), pp. 725-742.
- [4] G. Fragnelli, C. Pignotti,
“*Stability of solutions to nonlinear wave equations with switching time-delay*”,
Dynamics of Partial Differential Equations , Vol. 13 (2016), pp. 31-51.

- [5] S. Nicaise, C. Pignotti,
“Stability of the wave equation with localized Kelvin-Voigt damping and boundary delay feedback”,
Discrete and Continuous Dynamical Systems-S , Vol. 13 (2016), pp. 31-51.
- [6] K. Ammari, S. Nicaise, C. Pignotti,
“Stability of abstract wave equation with delay and a Kelvin-Voigt damping”,
Asymptotic Analysis, Vol. 95 (2015), pp. 21–38.
- [7] S. Nicaise, C. Pignotti,
“Exponential stability of abstract evolution equations with time delay”,
Journal of Evolution Equations, Vol. 15 (2015), pp. 107–129.
- [8] S. Nicaise, C. Pignotti,
“Stability results for second-order evolution equations with switching time-delay”,
Journal of Dynamics and Differential Equations, Vol. 26 (2014), pp. 781–803.
- [9] S. Nicaise, C. Pignotti,
“Stabilization of second-order evolution equations with time delay”,
Mathematics of Control, Signals and Systems, Vol. 26 (2014), pp. 563–58.
- [10] K. Ammari, S. Nicaise, C. Pignotti,
“Stabilization by switching time-delay”,
Asymptotic Analysis, Vol. 83 (2013), pp. 263–283.
- [11] S. Nicaise, C. Pignotti,
“Asymptotic stability of second- order evolution equations with intermittent delay”,
Advances in Differential Equations, Vol. 17 (2012), pp. 879–902.
- [12] C. Pignotti,
“A note on stabilization of locally damped wave equations with time delay”,
Systems & Control Letters, Vol. 61 (2012), pp. 92–97.
- [13] S. Nicaise, C. Pignotti,
“Exponential stability of second order evolution equations with structural damping and dynamic boundary delay feedback”,
IMA Journal of Mathematical Control and Information, Vol. 28 (2011), pp. 417–446.
- [14] S. Nicaise, C. Pignotti,
“Interior feedback stabilization of wave equations with time dependent delay” ,
Electronic Journal of Differential Equations, Vol. 2011 (2011), n. 41, pp. 1–20.
- [15] G. Fusco, F. Leonetti, C. Pignotti,
“A uniform estimate for positive solutions of semilinear elliptic equations”,
Transactions of American Mathematical Society, Vol. 363 (2011), pp. 4285–4307.
- [16] S. Nicaise, C. Pignotti, J. Valein,
“Exponential stability of the wave equation with boundary time-varying delay” ,
Discrete and Continuous Dynamical Systems-S, Vol. 4 (2011), n. 3, pp. 693–722.
- [17] K. Ammari, S. Nicaise, C. Pignotti,
“Feedback boundary stabilization of wave equation with interior delay”,

Systems and Control Letters, Vol. 59 (2010), pp. 623–628.

- [18] S. Nicaise, C. Pignotti,
“Asymptotic analysis of a simple model of fluide-structure interaction”,
Networks and Heterogeneous Media, Vol. 3 (2008), n. 4, pp. 787–813.
- [19] S. Nicaise, C. Pignotti,
“Stabilization of the wave equation with boundary or internal distributed delay”,
Differential and Integral Equations, Vol. 21 (2008), n. 9-10, pp. 935–958.
- [20] G. Fusco, C. Pignotti,
“Estimates for fundamental solutions and spectral bounds for a class of Schrödinger operators”,
Journal of Differential Equations, Vol. 244 (2008), n. 3, pp. 514–554.
- [21] G. Freni, F. Gozzi, C. Pignotti,
“Optimal strategies in linear multisector models: Value function and optimality conditions”,
Journal of Mathematical Economics, Vol. 44 (2008), n. 1, pp. 55–86.
- [22] S. Nicaise, C. Pignotti,
“Energy decay rates for solutions of Maxwell’s system with a memory boundary condition”,
Collectanea Mathematica, Vol. 58 (2007), n. 3, pp. 327–342.
- [23] S. Nicaise, C. Pignotti,
“Partially delayed stabilizing feedbacks for Maxwell’s system”,
Advances in Differential Equations, Vol. 12 (2007), n. 1, pp. 27–54.
- [24] S. Nicaise, C. Pignotti,
“Stabilization of the wave equation with variable coefficients and boundary condition of memory type”,
Asymptotic Analysis, Vol. 50 (2006), n. 1-2, pp. 31–67.
- [25] S. Nicaise, C. Pignotti,
“Stability and instability results of the wave equation with a delay term in the boundary or internal feedbacks”,
SIAM Journal on Control and Optimization, Vol. 45 (2006), n. 5, pp. 1561–1585.
- [26] S. Nicaise, C. Pignotti,
“Internal and boundary observability estimates for heterogeneous Maxwell’s system”,
Applied Mathematics and Optimization, Vol. 54 (2006), n. 1, pp. 47–70.
- [27] S. Nicaise, C. Pignotti,
“Internal stabilization of Maxwell’s equations in heterogeneous media”,
Abstract and Applied Analysis 2005, n. 7, pp. 791–811.
- [28] C. Pignotti,
“Semiconcavity results for constrained optimal control problems in a half-space”,
Journal of Mathematical Analysis and Applications, Vol. 305 (2005), pp. 197–218.
- [29] F. Camilli, C. Pignotti,
“A relaxation result for a class of degenerate Hamilton-Jacobi equations”,

Differential and Integral Equations, Vol. 18 (2005), pp. 419–430.

[30] S. Nicaise, C. Pignotti,
“Boundary stabilization of Maxwell’s equations with space-time variable coefficients”,
ESAIM Control Optimisation and Calculus of Variations, Vol. 9 (2003), pp. 563–578.

[31] C. Pignotti
“Rectifiability results for singular and conjugate points of optimal exit time problems”,
Journal of Mathematical Analysis and Applications, Vol. 270 (2002), pp. 681–708.

[32] P. Cannarsa, C. Pignotti,
“Semiconcavity of the value function for an exit time problem with degenerate cost”,
Le Matematiche, Vol. 55 - Suppl. 2 (2000), pp. 71–10.

[33] P. Cannarsa, C. Pignotti, C. Sinestrari,
“Semiconcavity for optimal control problems with exit time”,
Discrete and Continuous Dynamical Systems, Vol. 6 (2000), pp. 975–997.

[34] C. Pignotti,
“Observability and controllability of Maxwell’s equations”,
Rendiconti di Matematica e Applicazioni, Serie VII, Vol. 19 (2000), pp. 523–546.

[35] L. Fatone, C. Pignotti, M. C. Recchioni, F. Zirilli,
“Time harmonic electromagnetic scattering from a bounded obstacle: an existence theorem and a computational method”,
Journal of Mathematical Physics, Vol. 40 (1999), n. 10, pp. 4859–4887.

PROCEEDINGS AND VOLUMES

[36] C. Pignotti,
“Stability results for abstract evolution equations with intermittent time-delay feedback”,
In Solvability, Regularity, and Optimal Control of Boundary Value Problems for PDEs, Springer
Indam Series, Vol. 22 (2017), pp. 469–487.

[37] S. Nicaise and C. Pignotti,
“A note on the asymptotic stability of wave-type equations with switching time-delay”, In Evo-
lution Equations: Long Time behavior and Control, London Mathematical Society Lecture Note
Series, Cambridge University Press, Vol. 439 (2017), pp. 137–150.

[38] F. Alabau-Boussouira, S. Nicaise, C. Pignotti,
“Exponential stability of the wave equation with memory and time delay”
New Prospects in Direct, Inverse and Control Problems for Evolution Equations, Springer In-
dam Series, Vol. 10 (2014), pp. 1–22.

[39] S. Nicaise, C. Pignotti,
“Exponential and polynomial stability estimates for the wave equation and Maxwell’s
system with memory boundary conditions”,
Functional Analysis and Evolution Equations. The Gunter Lumer Volume (2008),
pp. 515–530, Birkhauser Verlag.

[40] P. Cannarsa, C. Pignotti,
“Optimal control with state constraints: a semiconcavity result”,

in “Proceedings of the 38th Conference on Decision and Control”,
IEEE, New York (1999), pp. 436–441.

PREPRINTS

[41] C. Pignotti and E. Trélat,
“*Convergence to consensus of the general finite-dimensional Cucker-Smale model with time-varying delays*”,
preprint 2017, ArXiv:1707.05020.

[42] C. Pignotti and I. Reche Vallejo,
“*Flocking estimates for the Cucker-Smale model with time lag and ierarchical leadership*”,
preprint 2017, ArXiv:1707.09244.

[43] C. Pignotti and I. Reche Vallejo,
“*Asymptotic analysis of a Cucker-Smale system with leadership and distributed delay*”,
preprint 2018.

OTHER PUBLICATIONS

[44] C. Pignotti,
“*Problemi di controllo ottimo con tempi di uscita: semiconcavità e applicazioni*”,
Bollettino UMI, Serie VIII, Vol. IV-A (2001), pp. 531–534 (Abstract Phd Thesis).

FUNDED PROJECTS (AS PI)

- Coordinator of the national GNAMPA 2018 research project “Analisi e controllo di modelli differenziali non lineari”, participants: V. Basco, F. Bucci, P. Cannarsa, G. Florida, R. Guglielmi, T. Scarinci, C. Urbani.
- Coordinator of the national GNAMPA 2017 research project “Comportamento asintotico e controllo di equazioni di evoluzione non lineari”, participants: V. Basco, F. Bucci, P. Cannarsa, G. Florida, G. Fragnelli, R. Guglielmi, T. Scarinci.

OTHER SCIENTIFIC ACTIVITIES

- Member of the *Collegio dei Docenti* of the Ph.D program Matematica e Modelli (previously Matematica), Università di L’Aquila (since 2009).
- Member of the Center of Excellence ‘Design methodologies of Embedded controllers, Wireless interconnect and Systems-on-chip’ (DEWS), Università di L’Aquila (since 2013).