

# ≈ CURRICULUM VITAE - MANUEL FERRETTI ≈

## PERSONAL INFORMATION

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First Name: Manuel  
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**Academic Address**  
DICEAA & M&MoCS  
University of L'Aquila  
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## EDUCATION

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- 2006 - 2009 Bachelor's Degree in Civil Engineering, University of L'Aquila. Title of the thesis: *Analisi agli elementi finiti per il solido isotropo di De Saint Venant sollecitato a flessione non uniforme* (Finite element analysis for the isotropic solid of De Saint Venant subjected to not uniform bending), Supervisor: Prof. Angelo Luongo, Graduated with full marks (110/110 cum laude).
- 2009 - 2011 Master's Degree in Civil Engineering, University of L'Aquila. Title of the thesis: *Modellazione ad approcci numerici al problema delle masse viaggianti su di un filo teso* (Numerical modeling approaches for the problem of the traveling masses on a taut string), Supervisor: Prof. Angelo Luongo, Graduated with full marks (110/110 cum laude).
- 2011 - 2014 Ph.D. in joint supervision between DICEAA, Università degli Studi dell'Aquila (Italy) & LaMCoS, Institut National des Sciences Appliquées de Lyon - INSA (France).  
Italian Ph.D. in *Ingegneria e Modellistica Fisico-Matematica* (Engineering and Physical-Mathematical Modelling).  
French Ph.D. in *Mécanique, Génie Mécanique, Génie Civil* (Mechanics, Mechanical Engineering, Civil Engineering).  
Title of the Thesis: *Non-linear Mechanics of Generalized Continua and Applications to Composite Materials*, Date of defense: November 7, 2014.

### Commission

Supervisor:	BOISSE Philippe LUONGO Angelo	Professor (INSA Lyon, France) Professor (Univ. of L'Aquila, Italy)
Co-Supervisor:	MADEO Angela	Maitre de Conférences (INSA Lyon, France)
Examiner:	DELL'ISOLA Francesco RUBINO Bruno	Professor (Univ. of Rome 'Sapienza', Italy) Professor (Univ. of L'Aquila, Italy)
Reviewer:	NEFF Patrizio REMOND Yves	Professor (Univ. of Duisburg-Essen, Germany) Professor (Univ. of Strasbourg, France)

## POSITIONS

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2014 - Present    **Post-Doc** at International Research Center on Mathematics and Mechanics of Complex System (M&MoCS) and Dipartimento di Ingegneria Civile, Edile-Architettura e Ambientale (DICEAA), University of L'Aquila.

## SCHOLARSHIPS

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- Scholarship for doctoral mobility. Title: *Bourses de Mobilité Doctorale du Programme Avenir Lyon Saint Etienne*, 6 months, 2013.
- Scholarship for cooperation and international mobility. Title: *Bourses de Coopération et Mobilité Internationales Rhône Alpes 2013* - CMIRA 2013, 6 months, 2013.

## RESEARCH FIELDS

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- Linear and nonlinear oscillations of one-dimensional, elastic, structural systems (strings and beams)
- Perturbation methods for multiple-bifurcations analysis of multi-parameter systems
- Stability and nonlinear oscillations of elastic systems under conservative and nonconservative loads
- Dynamics of strings and beams with traveling masses
- Mechanics of generalized continua
- Mechanics of woven fibrous composite reinforcements

## BIBLIOMETRIC INDEXES

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	Scopus	Google Scholar
h-index	4	5
Citations	100	153

*Last updated October 18, 2017*

## PUBLICATIONS

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### PEER-REVIEWED JOURNAL ARTICLES

- [1] Ferretti, M., Piccardo, G., (2013). 'Dynamic modeling of taut strings carrying a traveling mass', *Continuum Mechanics and Thermodynamics*, **25**(2-4), 469-488.
- [2] Ferretti, M., Madeo, A., dell'Isola, F., Boisse, P., (2013). 'Modeling the onset of shear boundary layers in fibrous composite reinforcements by second-gradient theory', *Zeitschrift für angewandte Mathematik und Physik*, **65**(3), 587-612.

- [3] Luongo, A., Ferretti, M., (2014). ‘Can a semi-simple eigenvalue admit fractional sensitivities?’, *Applied Mathematics and Computation*, **255**, 165-178.
- [4] Luongo, A., Ferretti, M., Seyranian, A. P., (2014). ‘Effects of damping on the stability of the compressed Nicolai beam’, *Mathematics and Mechanics of Complex Systems*, **3**(1), 1-26.
- [5] Madeo, A., Ferretti, M., dell’Isola, F., Boisse, P., (2014). ‘Thick fibrous composite reinforcements behave as special second gradient materials: three point bending of 3D interlocks’, *Zeitschrift für angewandte Mathematik und Physik*, **66**(4), 2041-2060.
- [6] D’Annibale, F., Ferretti, M., Luongo, A., (2016). ‘Improving the linear stability of the Beck’s beam by added dashpots’, *International Journal of Mechanical Sciences*, **110**, 151-159.
- [7] Luongo, A., Ferretti, M., D’Annibale, F., (2016). ‘Paradoxes in dynamic stability of mechanical systems: investigating the causes and detecting the nonlinear behaviors’, *SpringerPlus*, **5**(1), 1-22.
- [8] Luongo, A., D’Annibale, F., Ferretti, M., (2016). ‘Hard loss of stability of Ziegler’s column with nonlinear damping’, *Meccanica*, **51**(11), 2647-2663.
- [9] Luongo, A., Ferretti, M., (2016). ‘Postcritical behavior of a discrete Nicolai column’, *Nonlinear Dynamics*, **86**(4), 2231-2243.
- [10] Ferretti, M., Piccardo, G., Luongo, A., (2017). ‘Weakly nonlinear dynamics of taut strings traveled by a single moving force’, *Meccanica*, **52**(13), 3087-3099.
- [11] Ferretti, M., D’Annibale, F., Luongo, A., (2017). ‘Flexural-torsional flutter and buckling of braced foil beams under a follower force’, *Mathematical Problems in Engineering*, **2017**, Article ID 2691963, 1-10.

#### Ph.D. THESIS

- [1] Ferretti, M., (2014). ‘Non-linear Mechanics of Generalized Continua and Applications to Composite Materials’, *Università degli Studi dell’Aquila & Institut National des Sciences Appliquées de Lyon (INSA)*.

## PROCEEDINGS

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#### PEER-REVIEWED PROCEEDINGS

- [1] Luongo, A., Ferretti, M., ‘On the effect of damping and axial force on the paradox of the Nicolai beam’, *Atti del XXI Congresso Nazionale AIMETA - CD ROM*, Torino, 17-20 September 2013.
- [2] Luongo, A., Ferretti, M., ‘Fractional sensitivities of semi-simple eigenvalues for bifurcation analysis’, *Atti del XXI Congresso Nazionale AIMETA - CD ROM*, Torino, 17-20 September 2013.
- [3] Boisse, P., Wang, P., Hamila, N., Lemeur, K., Rusanov, A., Guzman, E., Ferretti, M., D’Agostino, M. V., Madeo, A., ‘Bias extension test for in-plane shear properties during forming. Use at high temperature and limits of the test’, *18th International ESAFORM Conference on Material Forming - ESAFORM 2015*, Graz (Austria), 15-17 of April 2015.

## CONFERENCES

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### INTERNATIONAL

- [1] Luongo, A., Ferretti, M., ‘Fractional Sensitivities of Semi-Simple Eigenvalues For Bifurcation Analysis’, *Numerical Computations: Theory and Algorithms - NUMTA2013 2013*, Falerna (Italy), 17-23 June 2013.
- [2] Ferretti, M., Madeo, A., dell’Isola, F., Boisse, P., ‘Certains Orthotropic Textiles Must Be Modeled As Second Gradient Hyperelastic Continua: Modelling The Onset Of Shear Boundary Layers’, *The 4th Canadian conference on Nonlinear Solid Mechanics - CanCNSM 2013*, Montreal (Canada), 23-26 July 2013.
- [3] D’Agostino, M. V., Boisse, P., dell’Isola, F., Ferretti, M., Madeo, A., Neff, P., ‘Large Deformations In Isotropic Second Gradient Solids: Some Numerical Simulations Describing The Onset Of Boundary Layers’, *The 4th Canadian conference on Nonlinear Solid Mechanics - CanCNSM 2013*, Montreal (Canada), 23-26 July 2013.
- [4] Placidi, L., Giorgio, I., Madeo, A., Ferretti, M., ‘Towards A Second Gradient Damage Model’, *The 4th Canadian conference on Nonlinear Solid Mechanics - CanCNSM 2013*, Montreal (Canada), 23-26 July 2013.
- [5] dell’Isola, F., Madeo, A., D’Agostino, M. V., Ferretti, M., Boisse, P., ‘Modelling fibrous composite reinforcements by second gradient theory: shear strain boundary layers and edge internal actions’, *17th U.S. National Congress on Theoretical & Applied Mechanics - USNCTAM 2014*, East Lansing (US), 15-20 June 2014.
- [6] Madeo, A., Ferretti, M., dell’Isola, F., Boisse, P., ‘Modelling shear boundary layers in fibrous composite reinforcements: a second gradient approach’, *Colloquium on Generalized Continua and their application to the design of composites and metamaterials - EUROMECH COLLOQUIUM 563*, Cisterna di Latina (Italy), 17-21 March 2014.
- [7] Boisse, P., Wang, P., Hamila, N., Lemeur, K., Rusanov, A., Guzman, E., Ferretti, M., D’Agostino, M. V., Madeo, A., ‘Bias extension test for in-plane shear properties during forming. Use at high temperature and limits of the test’, *18th International ESAFORM Conference on Material Forming - ESAFORM 2015*, Graz (Austria), 15-17 of April 2015.
- [8] Luongo, A., Ferretti, M., ‘Pushing over the Nicolai paradox: the nonlinear semi-simple Hopf bifurcation’, *Colloquium on Stability and control of nonlinear vibrating systems - EUROMECH COLLOQUIUM 562*, Sperlonga (Italy), 24-28 May 2015.
- [9] Madeo, A., Ferretti, M., dell’Isola, F., Boisse, P., ‘Second Gradient Modelling of 3D Composite Interlocks’, *9th European Solid Mechanics Conference - ESMC 2015*, Madrid (Spain), 6-10 of July 2015.
- [10] Luongo, A., D’Annibale, F., Ferretti, M., ‘Paradoxes in dynamic stability of beams: investigating the causes and detecting the nonlinear behaviors’, *International Conference on Nonlinear Dynamics, Chaos, Control and Applications to Engineering - ICONNE 2015*, Rio de Janeiro (Brazil), 6-11 of December 2015.

### NATIONAL

- [1] Luongo, A., Ferretti, M., ‘On the effect of damping and axial force on the paradox of the Nicolai beam’, *XXI Congresso Nazionale AIMETA*, Torino, 17-20 September 2013.
- [2] Luongo, A., Ferretti, M., ‘Fractional sensitivities of semi-simple eigenvalues for bifurcation analysis’, *XXI Congresso Nazionale AIMETA*, Torino, 17-20 September 2013.
- [3] Luongo, A., Ferretti, M., ‘Postcritical behavior of the Nicolai beam’, *XXII Congresso Nazionale AIMETA*, Genova, 14-17 September 2015.

- [4] Ferretti, M., D'Annibale, F., Luongo, A., 'Buckling and postbuckling analyses of tower-like structures', *XXIII Congresso Nazionale AIMETA*, Salerno, 4-7 September 2017.
- [5] D'Annibale, F., Ferretti, M., Luongo, A., 'A minimal continuous model for tower-building nonlinear static analysis', *XXIII Congresso Nazionale AIMETA*, Salerno, 4-7 September 2017.

## PARTICIPATION IN RESEARCH PROJECTS

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- PRIN10-11, Title of the project: *Dinamica stabilità e controllo di strutture flessibili*, Scientific Coordinator: Prof. Angelo Luongo, Financed by the Italian Ministry of Education, Universities and Research.

## TEACHING EXPERIENCES

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### COURSES

- 2012, October-December: Professor with a temporary appointment of *Continuum Mechanics and Second Gradient Materials* - 30 hours (INSA de Lyon, France).
- Academic year 2015-16: Professor with a temporary appointment of *Statics of structures* for students in Building and Architectural Engineering - 67 hours (University of L'Aquila).
- Academic year 2016-17: Professor with a temporary appointment of *Statics of structures* for students in Building and Architectural Engineering - 67 hours (University of L'Aquila).

### EXERCISES

- Academic year 2011-12: Exercises of *Mechanics of Structures* for Bachelor's students in Civil Engineering - 20 hours (University of L'Aquila, tenured professor: Prof. Angelo Luongo).
- Academic year 2012-13: Exercises of *Mechanics of Structures* for Bachelor's students in Civil Engineering - 20 hours (University of L'Aquila, tenured professor: Prof. Angelo Luongo).
- Academic year 2013-14: Exercises of *Mechanics of Structures* for Bachelor's students in Civil Engineering - 20 hours (University of L'Aquila, tenured professor: Prof. Angelo Luongo).
- Academic year 2014-15: Exercises of *Mechanics of Structures* for Bachelor's students in Civil Engineering - 20 hours (University of L'Aquila, tenured professor: Prof. Angelo Luongo).
- Academic year 2014-15: Exercises of *Dynamics of Structures* for Master's students in Civil Engineering - 20 hours (University of L'Aquila, tenured professor: Prof. Rocco Alaggio).
- Academic year 2015-16: Exercises of *Mechanics of Structures* for Bachelor's students in Civil Engineering - 20 hours (University of L'Aquila, tenured professor: Prof. Angelo Luongo).
- Academic year 2016-17: Exercises of *Stability and Bifurcation of Structures* for Master's students in Civil Engineering - 30 hours (University of L'Aquila, tenured professor: Prof. Angelo Luongo).
- Academic year 2016-17: Exercises of *Mechanics of Structures II* for students in Building and Architectural Engineering - 20 hours (University of L'Aquila, tenured professor: Prof. Francesco dell'Isola).
- Academic year 2016-17: Exercises of *Mechanics of Structures* for Bachelor's students in Civil Engineering - 10 hours (University of L'Aquila, tenured professor: Prof. Angelo Luongo).

## REVIEWER FOR INTERNATIONAL JOURNALS

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- Nonlinear Dynamics
- International Journal of Non-Linear Mechanics
- Archive of Applied Mechanics
- Meccanica
- Mathematics and Mechanics of Solids
- International Journal of Solids and Structures

## AFFILIATIONS AT SCIENTIFIC ASSOCIATIONS AND SOCIETIES

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### INTERNATIONAL

- EUROMECH

### NATIONAL

- AIMETA - Associazione Italiana di Meccanica Teorica e Applicata
- GADeS - Gruppo AIMETA di Dinamica & Stabilità

## ORGANIZATION OF CONFERENCES

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- Euromech Colloquium 562, Sperlonga, Italy, May 24-28 2015.