

Curriculum Vitae

INFORMAZIONI PERSONALI

Nome MASSIMILIANO
Cognome ZINGALES
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FORMAZIONE TITOLI

- July 1996, Master of Science in Civil Engineering with defence "Simulations of Multivariate fields of earthquake ground motions" and grade **110/110 with summa cum laude**.
- November 1996: Admission to the Ph.D. Course in "**Structural Engineering**" at University of Palermo, Advisor **Prof. Mario Di Paola**.
- January 1998: Admission to the "**Master of Science in Mechanical Engineering**", major aerospace engineering, at Florida Atlantic University Advisor **Prof. Isaac Elishakoff**,
- November 1998: **G.R.E.** (Graduate Record Examination) score 1286.
- February 2000, **Ph.D. graduation** with Defence "Digital Simulation of spatially correlated earthquake ground motions and effects on the probabilistic response of engineering structures".
- May 2000-March 2001, Mandatory military service for the Italian Ministry of Defence.
- March 2001-October 2002, Project Researcher on "Soft-Computing methods in engineering structures", Advisor **Prof. Santi Rizzo**.
- November 2002-present **Permanent Assistant Professor** of the SSD ICAR/08 (Solid mechanics and structural mechanics) at University of Palermo.
- September 2004-September 2007 **board member** of the **Ph.D. Course in Materials and Structural Mechanics** of University "Mediterranea" at Reggio Calabria.
- May 2008-present **board member** of the **Ph.D. Course in Civil and Material Engineering** at University of Palermo
- January 2007-present, **member** of the executive board of the College of Engineering of Palermo University.
- January 2008-present, **member** of the executive board of the Department of Civil, Environmental, Aerospace and Materials Engineering, University of Palermo.

ATTIVITA' DIDATTICA

Accademic Teaching

- 2003/2004, **Solid and Structural Mechanics**, College of engineering, University of Palermo.
- 2004/2005, **Structural and mechanical vibrations**, College of engineering, University of Palermo.
- 2004/2005, **Solid and Structural Mechanics**, College of engineering, University of Palermo.
- 2005/2006, **Structural and mechanical vibrations**, College of engineering, University of Palermo.
- 2006/2007, **Solids and Structural Mechanics**, College of engineering, University of Palermo.
- 2007/2008, **Principles of structural vibrations**, College of Architects, University of Palermo (at Agrigento).
- 2008/2009-2011/2012, **Structural Safety** College of engineering, University of Palermo.
- 2011/2012 **Solid and Structural Mechanics** College of engineering, University of Palermo.

Seminars and Advanced Classes

- April 1998, **Localization in Vibration of Disordered Continuous Beams**, Florida Atlantic University.
- March 2002, **Stochastic analysis of dynamical systems**, Master of Science in "Quantitative Methods and Operative Strategies in the assessment of financial risks", University of Palermo.
- August 2004, **Analysis of Dynamical Systems under α -Stable Noises**, Florida Atlantic University.
- August 2005, **Alternative Methods to Analysis of Stochastic Structures**, Florida Atlantic University.
- July 2012, **On the mechanical equivalence of Fractional Differential Operators**, University of Trento.
- January 2013, **Fractional-order hereditariness of biological elements: Bones and Cellular membranes**, Methodist Hospital Research Institute, Houston (TX), U.S.A.
- January 2013, **Multi-scale hierarchical models of bone hereditariness**, Carneige-Mellon University, Pittsburgh (PN), U.S.A.

RICERCHE FINANZIATE

- *Structural Stochastic analysis in presence of multivariate processes*, COFIN 1997, (Component).

- *Innovative methods for vibration damping in structural systems*, ex R.s. 60% 1997, (Component).

- *Structural identification of potential systems*, ex R.s. 60% 1998, (Component).

- *Identification of dynamical parameters of damaged structures*, COFIN 1999, (Component).

- *Structural identification and diagnostics: General methods and applications*, PRIN 2000, (Component).

- *Safety and Control of masonry bridges*, PRIN 2001, (Component).

- *Vibrations in Civil Engineering Structures (VINCES)* PRIN 2004, (Component)

- *A structured continuum for mechanics of materials with non-local elasticity*, ex Rs.60%, 2006-2008, (Principal Investigator)

- *An elastic continuum for the representation of long-range interactions*, ex Rs. 60% , 2008-2010, (Principal Investigator).

- *A physical approach to non-local viscoelasticity and to phase transition: Application to fracture mechanics*, PRIN 2008, (Co-Principal investigator of Palermo Research Unit)

- *Dynamics, stability and control of flexible structures*, PRIN 2010-2011, (Co-Principal Investigator of Palermo)

Research Unit).

- *A hierarchical material model of mineralized biological tissues: The influence of viscosity in osteoporosis, FFR 60%, (Principal Investigator).*

ASSOCIAZIONI SCIENTIFICHE

- 1999-present, Italian Association of Theoretical and Applied Mechanics.
- 2008-present, National Association of Wind Engineering.
- 2011-present, Engineering Mechanics Institute (EMI/ASCE).
- 2012-present, Society of Rheology.

PUBBLICAZIONE

A. International journals

1. Di Paola M., Zingales M., 2000, "Digital Simulation of Earthquake Ground Motion" *Earthquake Engineering and Structural Dynamics*, **29**, 1011-1027.
2. Zingales M., Elishakoff I., 2000, "Localization of the Bending Response in Presence of Axial Load" *International Journal of Solids and Structures*, **37**, 6739-6753.
3. Zingales M., Elishakoff I., 2001, "Hybrid Aeroelastic Optimization and Anti-Optimization" *American Journal of Aeronautic and Astronautic (AIAA)*, **39**, 161-175.
4. Zingales M., Elishakoff I., 2001, "Anti-Optimization vs Probability in an Applied Mechanic Problem: Vector Uncertainty", *Journal of Applied Mechanics*, **67**, 472-484.
5. Di Paola M., Zingales M., 2003, "Stochastic Seismic Analysis of Dam-Reservoir System" *Earthquake Engineering and Structural Dynamics*, **32**, 165-172.
6. Elishakoff I., Zingales M., 2003, "Coincidence of Boobnov-Galerkin and Exact Solutions in an Applied Mechanic Problem", *Journal of Applied Mechanics*, **70**, 777-779.

7. Zingales M., 2003, "Seismically Induced, Non-stationary Hydrodynamic Pressure in a Dam-Reservoir System", *Probabilistic Engineering Mechanics*, **18**, 151-163.
8. Elishakoff I., Zingales M., 2004, "Convergence of Boobnov-Galerkin Method Exemplified", *AIAA Journal*, **42**, n.9, 1931-1933.
9. Elishakoff, I., Zingales M., 2003, "Contrasting Probabilistic and Anti-Optimization Approaches in an Applied Mechanics Problem", *International Journal of Solids and Structures*, **40**, n. 16, 4281-4297.
10. Di Paola M., Pirrotta A., Zingales M., 2004, "Stochastic Dynamics of Linearly Elastic Trusses in Presence of Structural Uncertainties (Virtual Distorsion Method Approach)", *Probabilistic Engineering Mechanics*, **19**, Vol.1-2, 41-51.
11. Pirrotta A., Zingales M., 2006, "Actively Controlled Structural Systems under Delta-Correlated Random Excitation: Linear and Non-Linear Case", *Communications in Non-Linear Sciences and Numerical Simulations*, **4**, Vol. 11, 483-498.
12. Pirrotta A., Zingales M., 2006, "Stochastic analysis of dynamical systems with delayed control forces", *Communications in Non-Linear Sciences and Numerical Simulation*, **5**, Vol. 11, 646-661.
13. Di Paola M., Pirrotta A., Zingales M., 2007, "Ito Calculus extended to stochastic dynamics of non-linear systems under alpha-stable Lévy white noises (A novel clip of the levy motion)", *International Journal of non-linear mechanics*, **8**, Vol.42, 1046-1054.
14. Di Paola M., Pirrotta A., Zingales M., 2008, "Stochastic analysis of external and parametric dynamical systems under sub-Gaussian Lévy white-noise", *Structural Engineering and Mechanics*, **4**, Vol. 28, 373-386.
15. Di Paola M., Zingales M., 2008, "Stochastic Differential Calculus for Wind-Exposed Structures via Autoregressive Continuous Filters (ARC)", *Journal of wind Engineering & Industrial Aerodynamics*, **12**, Vol.96, 2403-2417.
16. Di Paola M., Zingales M., 2008, Long-range Cohesive Interactions of Non-Local Continuum faced by Fractional Calculus, *International Journal of Solids and Structures*, **9**, Vol.45, 5642-5659.
17. Carpinteri A., Cornetti P., Sapora A., Di Paola M., Zingales M., (2009), "Fractional Calculus in Solid Mechanics: Local vs Non-Local Approach", *Physica Scripta*, Vol. T136, Article Number 014003.
18. Di Paola M., Marino F., Zingales M., (2009), "Integral and Fractional Model of Elastic Foundation based on Long-Range Interactions", *International Journal of Solids and Structures*, Vol.46, 3124-3117.
19. Di Paola M., Failla G., Zingales M., (2009), "Physically based approach to the mechanics of strong non-local linear elasticity theory", *Journal of Elasticity*, Vol.97, 103-130.
20. Di Paola M., Zingales M., (2009), "Variational Aspects of the Physically-Based Approach to 3D non-Local Mechanics", *Materials Science Forum*, Vol. 638-642, 2549-2554.
21. Cottone G., Di Paola M., Zingales M., (2009), "Elastic Waves Propagation in 1D Fractional non-local continuum" *Physica E: Low-Dimensional Systems & Nanostructures*, Vol. 42, 95-103.
22. Failla G., Santini A., Zingales M., (2010), "Solution Strategies for 1D Linear Elastic Solids with Long-Range Interactions: Smooth and Fractional Decay" *Mechanics Research Communications*, Vol.37, 13-21.

23. Di Paola M., Pirrotta A., Zingales M., (2010), "Physically based approach to the mechanics of non-local continuum: Variational Principles", *International Journal of Solids and Structures*, Vol. 47, 539-548.
24. Di Paola M., Failla G., Zingales M., (2010), "The mechanically-based approach to 3d non-local linear elasticity theory long-range central interactions", *International Journal of Solids and Structures*, Vol. 47, 2347-2358.
25. Zingales M., (2011) "Wave Propagation in a Physically-Based Non-local Elastic Continuum", *Journal of Sound and Vibrations*, Vol. 330, 3973-3989.
26. Zingales M., Di Paola M., Inzerillo G., (2011), "The Finite Element Method for the Physically-Based Model of non-Local Elastic Continuum", *International Journal for Numerical Methods in Engineering*, Vol. 86, 1558-1576.
27. Borino G., Di Paola M., Zingales M., (2011), "A non-local model of fractional heat conduction in rigid bodies", *The European Physics Journal-Special Topics*, Vol. 173, 173-184.
28. Di Paola M. Sofi A., Zingales M., (2011) "Stochastic analysis of One-Dimensional Heterogeneous Solids with Long-Range Interactions", *International Journal of Multiscale Methods in Engineering*, Vol. 8, Article #2510.
29. Di Paola M., Failla G., Sofi A., Zingales M., (2011), "A Mechanically-Based Non-Local Beam Theory", *International Journal of Mechanical Sciences*, **9**, Vo.53, 676-687.
30. Di Paola M., Zingales M., (2011), "The Fractional Differential Calculus for the 3D Mechanically-Based Non-Local Elasticity", *International Journal of Multiscale Methods in Engineering*, Vol. 9, Article #2510.
31. Di Paola M., Zingales M., (2012), "Exact Mechanical Models for Fractional Viscoelastic Material", *Journal of Rheology* ., Vol.**58**, 988-1004.
32. Di Paola M., Failla G., Sofi A., Zingales M., (2012), "On the Vibrations of a Mechanically-bases Non-local Beam Model", *Computational Material Science*, **64**, 278-282.
33. Failla G., Santini A., Zingales M., (2012), "The fractional calculus approach to the analysis of elastic foundations shear layers", *Archive of Applied Mechanics*, **83**, 253-272.
34. Di Paola M., Pinnola F.P., Zingales M., (2013), "A discrete mechanical model of fractional hereditary materials", *Meccanica: An International Journal*, in press, doi: 10.1007/s11012-012-9685-4
35. Di Paola M., Failla G., Zingales M., (2013), "Non-Local Shear and Damping Models for Shear-Deformable Beams" , *European Journal of Mechanics: A/Solids*, **40**, 69-83.
36. Muscolino G., Sofi A., Zingales M., (2013), "One-dimensional heterogeneous solids with uncertain-but-bounded elastic modulus in presence of long-range interactions", *Computers and Structures*, in press.
37. Di Paola M., Failla G., Pirrotta A., Sofi A., Zingales M., (2013), "The Mechanically-Based non-local elasticity: An overview of main results and future challenges", *Philosophical Transaction of the Royal Society of London A: Mathematical Physical and Engineering Science*, **371**, 1-16
38. Di Paola M., Pinnola F.P., Zingales M., (2013), "Fractional differential equations and related exact mechanical models", *Computers and Mathematics with Applications*, in press.

39. Zingales M., Failla G., Rizzo U., (2013), "Fractional-order thermal energy transport for small-scale engineering devices", *Journal of Nanomechanics and Micromechanics (ASCE)*, in press.
40. Di Paola M., Failla G., Zingales M., (2013), "A non-local Euler-Bernoulli beam model", *Journal of Nanomechanics and Micromechanics (ASCE)*, in press.
41. Deseri L., Di Paola M., Zingales M., Pollaci P. (2013), "Power-law hereditariness of hierarchical fractal bones", *International Journal for Numerical Methods in Biomedical Engineering*, in press.
42. Di Paola M., Zingales M., (2013), "The multiscale stochastic model of fractional hereditary materials (FHM)" *IUTAM Procedia*, **6**, 50-59.
43. Muscolino G. Sofi A., Zingales M., (2013), "Long-range interactions in 1D heterogeneous solids with uncertainty", *IUTAM Procedia*, **6**, 69-78.

B. Books and books chapters

1. Cottone G., Di Paola M., Zingales M., (2008), *Fractional Calculus Approach to the Dynamics of Non-Local Media*, *Advances in Numerical Methods*, Springer-Verlag, New-York.

C. National Journals

1. Pirrotta A., Santoro R., Zingales M., (2009), "Non-Stationary Dynamic Analysis of Random Structures via Virtual Distortion Method", *Giornale di Meccanica dei Solidi e delle Strutture*, Vol.1, 88-107.

D. Papers under review

1. Mongiovì M.S., Zingales M., (2013), "On a fractional formulation of long-range thermal energy transfer", *Journal of Heat and Mass Transfer*.
2. Deseri L, Zingales M., Pollaci P., (2013), "On the Notion of State of Fractional Hereditary Materials", *Discrete and Continuous Dynamical Systems*.
3. Failla G., Sofi A., Zingales M., (2013), "A new model of long-range interactions in non-local nanobeams", *Nanotechnology*.

E. Papers in preparation

1. Deseri L, Di Paola M., Zingales M., (2013), The free energy density of fractional hereditariness, *Journal of Rheology*.

2. Deseri L., Zingales M., (2013), "Fractional hereditary model of lipid biomembranes", *Journal of Biomechanics and Mechanobiology*.

3. Ferrari M., Deseri L., Zingales M., (2013), "A mechanical description of anomalous fluid diffusion for biological tissue engineering", *Journal of Nanotechnology in Engineering and Medicine*.

D. International Conference Proceedings

1. Di Paola M., Zingales M., "Digital Simulation of Multivariate Non-Stationary Earthquake Ground Motion", atti del 2nd International Symposium on Earthquake Resistant Engineering Structures, Catania, 13-15 Giugno 1999, pp. 373-382.

2. Di Paola M., Zingales "Stochastic Seismic Induced Effects in Dam-Reservoir Systems", atti del 3rd International Symposium on Earthquake Resistant Engineering Structures, Malaga, 3-5 settembre 2001, pp. 91-100.

3. Di Paola M., Pirrotta A., Zingales M., "Non-stationary Probabilistic Analysis of Dynamical Systems under Delta-Correlated White Noise", in stampa sugli atti del Congresso EURODDYN02, Monaco, 2-5 settembre 2002.

4. Zingales M., "Stochastic Seismic Induced Hydrodynamic Pressure by Modal Analysis, Atti del Congresso CSM4, Corfù, 9-13 giugno 2002, 139-149.

5. Di Paola M., Pirrotta A., Zingales M., "Dynamic Analysis of linear Elastic Systems in Presence of Structural Uncertainty" Atti del Congresso CSM4, Corfù, 9-13 giugno 2002, 675-684.

6. Di Paola M., Pirrotta A., Zingales M., "Dynamic Analysis of Stochastic Linearly Elastic Non-Redundant Trusses (Time Domain Approach)", Atti del Congresso APM 2003, San Pietroburgo, 22 giugno-02 luglio 2003, 59-66.

7. Pirrotta A., Zingales M., "Active Control of Structural Systems under Delta-Correlated Random Excitation", Atti del Congresso UDDYN2003, 8-10 dicembre 2003, Łódź, Polonia, (CD-ROM).

8. Di Paola M., Pirrotta A., Zingales M., "Stochastic Analysis of Linear and Non-Linear Systems under a-stable Lévy White Noise", Atti del Congresso ASEM04, 2-4 settembre 2004, Seoul, Korea, (CD-ROM)

9. Di Paola M., Pirrotta A., Zingales M. "Itô calculus extended to non-linear systems under a-stable Lévy White Noise", Atti del Convegno Icosar'05, Roma, 19-23 giugno 2005.

10. Di Paola M., Pirrotta A. Zingales M., "Non-linear systems under parametric a-stable Lévy White Noises", Atti della 20th Conferenza internazionale VIB 05 (ASME), Long Beach (U.S.A.) 24-28 settembre 2005, (CD-ROM).

11. Zingales M. "Probabilistic analysis of uncertain Bernoulli-Euler beams", Atti della *Fifth International Conference on Computational Stochastic Mechanics (CSM5)*, 21-23 giugno 2006 Rodi.

12. Pirrotta A., Santoro R., Zingales M., "Structural Vibrations of Uncertain Systems through the Virtual Distortion Method (VDM)", Atti dell'*International Symposium on Recent Advances in Mechanics, Dynamics and Probability (MDP)*, Mondello 3-6 giugno 2007, (CD-ROM).

13. Cottone G., Di Paola M., Zingales M., "Dynamics of non-local systems handled by fractional calculus", Atti della *6th WSEAS International Conference on CIRCUITS, SYSTEMS, ELECTRONICS, CONTROL & SIGNAL PROCESSING*,

Cairo 29-31 Dicembre, 2007 , (CD-ROM).

14. Di Paola M., Zingales M., "Variational Aspects of the Physically-Based Approach to 3D Non-Local Continuum Mechanics", *International Conference on Processing & Manufacturing of Advanced Materials (THERMEC'2009)*, Berlino, 25-28 settembre 2009.

15. Di Paola M., Failla G., Zingales M., "Wavelet Representation of Arbitrary Signals Using Fractional Calculus ", *6th Computational Stochastic Mechanics Conference (CSM6)*, Rhodos, 13-16 June, 2010.

16. Di Paola M., Pinnola F.P., Zingales M., " Fractional differential equations of multiphase hereditary materials and exact mechanical models", *Fractional Differential Applications, Fifth symposium on Fractional Differentiations and its Applications (FDA2012)* , 14-17 May 2012, Nanjing, China.

17. Di Paola M., Pinnola F.P., Zingales M., "Fractional multiphase hereditary materials: Mellin Transforms and Multi-Scale Fractances" *European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS2012)*, Vienna, 10-14 settembre 2012.

E. National Conference proceedings

1. Di Paola M., Zingales M., "Simulazione Digitale di Accelerazione Sismica", *Atti del VIII Congresso Nazionale ANIDIS, L'ingegneria sismica in Italia, Taormina, 21-24 settembre 1997, Vol.2, pp. 705-712*

2. Di Paola M., Zingales M., "Risposta Probabilistica di Strutture Continue Soggette ad Accelerazioni Sismiche Spazialmente Correlate", *Atti del XIV Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata, AIMETA99, Como, 28-30 ottobre 1999, su CD ROM.*

3. Pirrotta A., Zingales M., "Controllo Attivo di Sistemi Lineari Soggetti ad Eccitazioni Non- Gaussiane", *Atti del XV Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata, AIMETA01, Taormina 26-29 settembre 2001, su CD ROM*

4. Di Paola M., Pirrotta A., Zingales M., "Analisi Aleatoria di Sistemi non-Lineari soggetti a Forzanti Impulsive", *Atti del XVI Congresso Nazionale AIDAA, Palermo 24-29 settembre 2001, su CD ROM.*

5. Pirrotta A., Zingales M., " Analisi Dinamica di Strutture Isostatiche A Parametri Stocastici" *Atti del XVI Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata, AIMETA03, Ferrara (su CD ROM).*

6. Di Paola M., Zingales M., "Applicazione Del Calcolo Differenziale Stocastico A Sistemi Elastico-Lineari Con Parametri Incerti Soggetti A Carichi Statici", *Atti del XVI Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata, AIMETA03, Ferrara (su CD ROM).*

7. Di Paola M., Zingales M., "Modellazione e risposta di strutture continue a parametri incerti mediante processi Poissoniani filtrati", *In stampa sugli atti del 3° Congresso nazionale del gruppo AIMETA di Meccanica Stocastica, Pantelleria 31/05-01/06 2004 (su CD ROM).*

8. Pirrotta A., Santoro R., Zingales M., "Analisi dinamica di strutture reticolari a parametri incerti con forzante aleatoria", *Atti del XVII Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata, AIMETA05, Firenze (su*

CD ROM).

9. Zingales M., "Strutture Continue in presenza di incertezza mediante l'approccio alle distorsioni virtuali", Atti del XVII Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'05), Firenze (su CD ROM).

10. Di Paola M., Zingales M., "Il modello autoregressivo continuo (ARC) per l'analisi dinamica di strutture eccitate dal vento", Atti dell'9° Convegno Nazionale di Ingegneria del Vento (In-Vento 2006), Pescara 21-23 giugno 2006 (su CD ROM).

11. Di Paola M., Zingales M., "Non-local continuum: Fractional calculus approach", Atti del XVIII Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'07), Brescia 11-14 settembre 2007 (su CD ROM).

12. Pirrotta A., Santoro R., Zingales M. "The Saint-Venant cylinder under shear forces: Harmonic polynomial solution", Atti del XVIII Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'07), Brescia 11-14 settembre 2007 (su CD ROM).

13. Di Paola M., Pirrotta A., Zingales M., "The Integral Autoregressive Continuous Filter (I-ARC) for Wind Velocity Field", Atti del 10° Convegno Nazionale di Ingegneria del Vento (In-Vento 2008), Cefalù (PA) 8-11 giugno 2008 (su CD ROM).

14. Cottone G., Di Paola M., Zingales M., "Probabilistic Analysis of 1D Non-Local Continuum under Random Loads", Atti del Convegno Meccanica Stocastica 2008, Cefalù (PA) 11-12 giugno 2008 (su CD ROM).

15. Di Paola M., Failla G., Inzerillo G., Zingales M., "Non-local finite element method for the analysis of elastic continuum with long-range central interactions", Atti del XIX Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'09), Ancona 14-17 settembre 2009 (su CD ROM).

16. Di Paola M., Pirrotta A., Zingales M., "Waves propagation in a fractional viscoelastic continuum", Atti del XIX Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'09), Ancona 14-17 settembre 2009 (su CD ROM).

17. Failla G., Santini A., Zingales M. "A Wavelet-galerkin method for a 1D elastic continuum with long-range interactions", Atti del XIX Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'09), Ancona 14-17 settembre 2009 (su CD ROM).

18. Carpinteri A., Cornetti A., Sapora A., Di Paola M., Zingales M., "An explicit mechanical interpretation of Eringen non-local elasticity by means of fractional calculus", Atti del XIX Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'09), Ancona 14-17 settembre 2009 (su CD ROM).

19. Di Paola M., Zingales M., "Non-Local Thermoelasticity: The Fractional Heat conduction", Atti del XX Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'11), Bologna 12-15 settembre 2011.

20. Failla G., Santini A., Zingales M., "A Non-Local Two Dimensional Foundation Model", Atti del XX Convegno Nazionale dell'Associazione Italiana di Meccanica Teorica ed Applicata (AIMETA'11), Bologna 12-15 settembre 2011.

F. Abstracts of comunicated papers

1. Di Paola M., Santoro R., Zingales M., Strutture Continue a Parametri Incerti: Uso del Calcolo Differenziale Stocastico, Atti del 1° Workshop Dinamica delle Strutture: Analisi e Sperimentazione, Messina 21-22, febbraio 2005.

2. Pirrotta A., Santoro R., Zingales M., Risposta di Strutture a Parametri Incerti sotto Forzanti Dinamiche Aleatorie, Atti

del 1° Workshop Dinamica delle Strutture: Analisi e Sperimentazione, Messina 21-22, febbraio 2005.

3. Cottone G., Di Paola M., Zingales M., "Probabilistic Analysis of Non-Local Random Media", 6th WCCM-ECCOMAS International Conference, Venice 29 giugno-3 luglio, 2008.
4. Di Paola M., Pirrotta A., Zingales M., "Auto-Regressive Continuous (ARC) Filters for Stochastic Differential Calculus on Non-linear Structures under Earthquake Ground Motion", International Conference on Seismic Engineering, MERCEA'08, Messina e Reggio Calabria, 8-11 luglio 2008.
5. Di Paola M., Pirrotta A., Zingales M., "The Fractional Calculus Approach for the Analysis of Elastic Solids with Long-Range Interactions", GMA'09 Riunione del Gruppo Materiali dell'AIMETA, Milano, 23-24 gennaio 2009.
6. Di Paola M., Zingales M., "The Fractal Model of the Long-Range Interactions in Non-Local Mechanics: The Fractional Calculus", GMA'10 Riunione del Gruppo Materiali dell'AIMETA, Palermo, 25-26 febbraio 2010.
7. Di Paola M., Zingales M., "The Fractal Model of Non-Local Elasticity with Long-Range Interactions", ECCM'10 IV European Conference on Computational Mechanics, Parigi 16-21 maggio, 2010.
8. Di Paola M., Borino G., Zingales M., "A Mechanical Approach to Fractional Non-Local Thermoelasticity", 10th Congress of SIMAI, Italian Society for Applied and Industrial Mathematics, Cagliari 21-25 giugno 2010.
9. Di Paola M., Zingales M., "A Fractional Approach to Non-Local Thermoelasticity", GMA'11 Riunione del Gruppo Materiali dell'AIMETA, Udine, 23-25 febbraio 2011.
10. Pirrotta A., Zingales M., "Continuous Ladder Model of Fractional Viscoelasticity", GMA'11 Riunione del Gruppo Materiali dell'AIMETA, Udine, 23-25 febbraio 2011.
11. Di Paola M., Failla G., Sofi A., Zingales M., "Free vibrations analysis of non-local Timoshenko beams by a mechanically based approach", 21° *International Workshop on Computational Mechanics of Materials (IWCM21)*, Limerick, 22-24 August 2011.
12. Di Paola M., Zingales M., Rizzo U., "A non-local model of thermal energy transfer in 2D rigid conductors", GMA'12 Riunione del Gruppo Materiali dell'AIMETA, Lucca, 12-13 Aprile 2012.
13. Deseri L., Zingales M. "A fractional hereditary model of planar lipid bio-membranes", GMA'12 Riunione del Gruppo Materiali dell'AIMETA, Lucca, 12-13 aprile 2012.
14. Deseri L., Zingales M., "On the Hereditariness of Lipid Membranes", Mathematical Models and Analytical Problems in Special Materials (MathProSpeM2012) INdAM Workshop, Roma, 16-20 April 2012.
15. Di Paola M., Failla G., Zingales M., "Stability analysis of a non-local column with non-central interactions", EMI/PMC 2012 Joint conference of the Engineering Mechanics Institute and the 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, 17-20 June, 2012, Notre-Dame (U.S.A.).

G. Ph.D. Thesis

1. Zingales M., "Simulazione Digitale di Accelerazioni sismiche spazialmente correlate ed effetti sulla risposta probabilistica di strutture continue", Palermo, 2000.

ATTIVITA' SCIENTIFICHE

Editorial Activities:

- **Reviewer for** *International Journal of Solids and Structures* since 2002.
- **Reviewer for** *AIAA Journal* since 2003.
- **Reviewer for** *Probabilistic Engineering Mechanics* since 2006
- **Reviewer for** *Mechanics of Materials* since 2006
- **Reviewer for** *Structural Engineering and Mechanics* since 2008.
- **Reviewer for** *Journal of Mechanics Materials and Structures* since 2012
- **Reviewer for** *Journal of Elasticity* since 2011
- **Reviewer for** *International Journal of Mechanical Sciences* since 2012
- **Reviewer for** *Journal of Engineering Mechanics (ASCE)* since 2012
- **Reviewer for** *Comptes Rendus de Mechanique* since 2012.
- **Reviewer for** *European Journal of Mechanics:A/solids* since 2012
- **Reviewer for** *Phylosophical Transaction of the Royal Society of London A: Mathematical, Physical and Engineering Sciences*, since 2012.
- **Reviewer for** *Annals of Biomedical Engineering*, since 2013.
- **Editor of the Proceedings** of the "10° Convegno Nazionale di Ingegneria del Vento 8-11 Giugno 2008, Cefalù," (A. Pirrotta, M. Zingales), Palermo 2008.

Tutorial Activity

- 1999-present **Supervisor** of many M.S. Thesis on different problems in mechanics.
- 2007-2011 **Supervisor** of a research assistant position (Assegno di Ricerca, Dott. Giulio Cottone) **A structured continuum for materials with non-local elasticity**, University of Palermo.

· 2012-present **External supervisor** for n.1 Ph.D student (Dott. Pietro Pollaci) of the **Doctorate School** in Structural, Mechanics and Civil systems of University of Trento.

AMBITI DI RICERCA

1. Solids Mechanics
2. Material Mechanics
3. Thermodynamics
4. Stochastic Mechanics
5. Biomechanics
6. Applied Mathematics
7. Structural Dynamics
8. Nanomechanics & Micromechanics
9. Fractal Geometries
10. Mechanobiology
11. Biomedical Engineering
12. Theoretical Applied Mechanics