

Ivan Giorgio

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Personal Information

First name & Surname: Ivan Giorgio
Date of birth: January 22, 1978
Place of birth: San Fele (PZ), Italy
Nationality: Italian
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Scopus Author ID: 24757867200 (<http://www.scopus.com/authid/detail.url?authorId=24757867200>)
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Education

Ph.D. in Theoretical and Applied Mechanics, SAPIENZA Università di Roma, 10/10/2008.
Thesis title: “Multimode Collocated Vibration Control with Multiple Piezoelectric Transducers”
Supervisor: Prof. Dionisio Del Vescovo.
url: <http://hdl.handle.net/10805/955>
HAL archive: <http://tel.archives-ouvertes.fr/tel-00798635>

M.Sc. in Mechanical Engineering, *Summa Cum Laude*, SAPIENZA Università di Roma, 24/03/2004.
Thesis title: “Trajectory-tracking and vibration control of a flexible-link manipulator”
Supervisor: Prof. Dionisio Del Vescovo.

Diploma di Maturità Classica, (Secondary School diploma in Classics), Liceo-Ginnasio Statale of Rionero in Vulture, with grade 60/60 1998.

Courses and Seminars Attended

Equations of Mathematical Physics held by Prof. Daniele Andreucci,
Solid Mechanics Lectures held by Prof. Giuseppe Ruta,
Homogenization techniques held by Prof. Micol Amar,
Analytical Continuum Mechanics and Applications held by Prof. Francesco dell’Isola.

Current Position

02/04/2013 - 31/03/2016. **Research Fellow** at Faculty of Engineering, Dep. of Structural and geotechnical engineering, SAPIENZA Università di Roma, Italy.

Previous Positions

01/11/2011 - 31/10/2012. **Research Fellow** at Faculty of Engineering, Dep. of Mechanical and Aerospace Engineering, SAPIENZA Università di Roma, Italy;

01/05/2009 - 30/04/2011. **Research Fellow** at Faculty of Engineering, Dep. of Mechanics and Aeronautics, SAPIENZA Università di Roma, Italy.

Experience and Skills

Professional Engineer No. A 30891, Rome 2009.

Language Skills

Italian: *Mother tongue*,

English: Good,

French: Beginner.

Computer Skills

Operating systems: Mac OS X, Linux and Windows.

Scientific Software: Matlab, Mathematica, COMSOL Multiphysics, Nastran, Ansys.

Teaching Activities

Tutor on *Applied Mechanics* at Department of Mechanical and Aerospace Engineering of SAPIENZA Università di Roma, 2009–2012.

Tutorials and seminars on *Solid Mechanics* at SAPIENZA Università di Roma, 2014.

Tutorials and seminars on *Applied Mechanics* at SAPIENZA Università di Roma, 2005–2012.

Tutorials and seminars on *Mechanics of Robots* at SAPIENZA Università di Roma, 2005–2011.

Supervision of graduate students and postdoctoral fellows

Ph.D. Students: n. 2 (Ph.D. candidate), 2014

Master Students: n. 6 (Master candidate), 2006 - 2012

Other Activities

Internship at testing laboratory: “Laboratorio Ufficiale Prove Materiali e Strutture” of University of L'Aquila, 2009 - 2015.

Internship at testing laboratory: “Laboratorio di Sperimentazione e Ricerca su Materiali e Strutture” of Roma Tre University, 2008.

Research

Fields of Scientific Interest

Mechanics of solids and structures and Vibration Control. More specifically: Modelling of elastic microstructured solids, fluid flow in porous media, piezoelectric materials in linear and non linear contexts; Vibration control in beams or plates connected to electric networks by means of PZT transducers; Bone tissue remodelling.

Publications

1. Pepe G., Giorgio I., Carcaterra A., Del Vescovo D. & Sestieri A. (2015) Semiactive vibration control via VFC-variational feedback by piezoelectric actuation. NOVEM 2015, the 5th conference on *Noise and vibration - Emerging technologies*, Dubrovnik - Croatia, 13-15 April 2015.
2. dell'Isola, F., Della Corte, A. & Giorgio, I. (2015) Pantographic 2D sheets: discussion of some numerical investigations and potential applications. *International Journal of Non-Linear Mechanics*. Submitted.
3. dell'Isola, F., Giorgio, I. & Andreus, U. (2015). Elastic pantographic 2D lattices: a numerical analysis on static response and wave propagation. *Proceedings of the Estonian Academy of Sciences*, Accepted.
4. Placidi, L., Giorgio, I., Della Corte, A. & Scerrato, D. (2015). Euromech 563 Cisterna di Latina 17-21 March 2014 Generalized continua and their applications to the design of composites and metamaterials: A review of presentations and discussions. *Mathematics and Mechanics of Solids*, DOI: 10.1177/1081286515576948
5. dell'Isola, F., Della Corte, A. & Giorgio, I. (2014). Higher Gradient Continua: the legacy of Piola, Mindlin, Sedov and Toupin and some future research perspectives. *Mathematics and Mechanics of Solids*. Accepted.
6. Scerrato, D., Giorgio, I., Della Corte, A., Madeo, A., Dowling, N. E. & Darve, F. (2014). Towards the design of an enriched concrete with enhanced dissipation performances. *Cement and Concrete Research*. Submitted.
7. Scerrato, D., Giorgio, I., Della Corte, A., Madeo, A. & Limam, A. (2014). A micro-structural model for dissipation phenomena in the concrete *Int. J. Numer. Anal. Meth. Geomech*. Submitted.
8. Giorgio I., Andreus U., Lekszycki T. & Della Corte A. (2014) The Influence of Different Geometries of Matrix/Scaffold on the Remodeling Process of a Bone and Bio-Resorbable Material Mixture with Voids. *Mathematics and Mechanics of Solids*. Accepted.
9. Pepe G., Carcaterra A., Giorgio I., Del Vescovo D. (2014). Variational Feedback Control for a nonlinear beam under an earthquake excitation. *Mathematics and Mechanics of Solids*, DOI: 10.1177/1081286514562878.
10. Abd-alla A. N., Alshaiikh F., Giorgio I. Della Corte A. (2014). A mathematical model for longitudinal wave propagation in a magnetoelastic hollow circular cylinder of anisotropic material under the influence of initial hydrostatic stress. *Mathematics and Mechanics of Solids*, Accepted.
11. Enakoutsu K., Della Corte A. & Giorgio I. (2014). A model for elastic flexoelectric materials including strain gradient effects. *Mathematics and Mechanics of Solids*, Accepted.
12. Berezovski A., Giorgio I. & Della Corte A. (2015). Interfaces in micromorphic materials: wave transmission and reflection with numerical simulations. *Mathematics and Mechanics of Solids*, DOI: 10.1177/1081286515572244.
13. Giorgio I., Galantucci L., Della Corte A. & Del Vescovo D. (2015). Piezo-electromechanical Smart Materials with distributed arrays of Piezoelectric Transducers: current and upcoming applications. *International Journal of Applied Electromagnetics and Mechanics*, Published online 06 February 2015 DOI: 10.3233/JAE-140148.
14. Abd-alla A. N., Galantucci L., Giorgio I., Hamdan A. M. & Del Vescovo D. (2014). Wave reflection at a free interface in an anisotropic pyroelectric medium with nonclassical thermoelasticity. *Continuum Mechanics and Thermodynamics*, DOI: 10.1007/s00161-014-0400-7.
15. Giorgio I., Andreus U. & Madeo A. (2014). The Influence of Different Loads on the Remodeling Process of a Bone and Bio-Resorbable Material Mixture with Voids. *Continuum Mechanics and Thermodynamics*, 11 December 2014, DOI: 10.1007/s00161-014-0397-y.
16. D'Agostino M.V., Giorgio I., Greco L., Madeo A. & Boisse P. (2014). Continuum and discrete models for structures including (quasi-)inextensible elasticae with a view to the design and modeling of composite reinforcements. *International Journal of Solids and Structures*, DOI: 10.1016/j.ijsolstr.2014.12.014.
17. Abd-alla A. N., Hamdan A. M., Giorgio I. & Del Vescovo D. (2014) The mathematical model of reflection and refraction of longitudinal waves in thermo-piezoelectric materials. *Archive of Applied Mechanics*, 84(9-11), 1229-1248.

18. Andraeus U., Giorgio I. & Madeo A. (2015). Modeling of the interaction between bone tissue and resorbable biomaterial as linear elastic materials with voids. *ZAMP - Journal of Applied Mathematics and Physics*, 66(1), 209–237.
19. Scerrato, D., Giorgio, I., Madeo, A., Limam, A. & Darve, F. (2014). A simple non-linear model for internal friction in modified concrete. *International Journal of Engineering Science*, 80, 136–152.
20. Del Vescovo, D. & Giorgio, I., (2014). Dynamic problems for metamaterials: review of existing models and ideas for further research. *International Journal of Engineering Science*, 80, 153–172.
21. Rosi, G., Giorgio, I. & Eremeyev, V. A. (2013). Propagation of linear compression waves through plane interfacial layers and mass adsorption in second gradient fluids. *ZAMM - Journal of Applied Mathematics and Mechanics / Zeitschrift für Angewandte Mathematik und Mechanik*, 93(12), 914–927.
22. Placidi L., Rosi G., Madeo A. & Giorgio I. (2014). Reflection and transmission of plane waves at surfaces carrying material properties and embedded in second gradient materials. *Mathematics and Mechanics of Solids*, 19(5), 555–578.
23. Andraeus U., Giorgio I. & Lekszycki T. (2014). A 2-D continuum model of a mixture of bone tissue and bio-resorbable material for simulating mass density redistribution under load slowly variable in time. *ZAMM - Journal of Applied Mathematics and Mechanics*, 94(12):978–1000.
24. Bersani A. M., Giorgio I. & Tomassetti G. (2013). Buckling of an Elastic Hemispherical Shell with an Obstacle. *Continuum Mechanics and Thermodynamics*, 25(2), 443–467.
25. Shen H., Qiu J.H., Ji H.L., Zhu K.J., Balsi M., Giorgio I. & dell’Isola F. (2010). A low-power circuit for piezoelectric vibration control by synchronized switching on voltage sources. *Sensors and Actuators. A, Physical*, 161, 245–255.
26. Giorgio I., Culla A. & Del Vescovo D. (2009). Multimode vibration control using several piezoelectric transducers shunted with a multiterminal network. *Archive of Applied Mechanics*, 79, 859–879.

Reports

Technical report on behalf of the International research center M&MoCS; Subject: “Structural analysis of an Windmill Tower”, 2012. Supervisor: Prof. Luongo Angelo.

Technical report on behalf of the International research center M&MoCS; Subject: “Structural analysis of an oven for tempering of flat glass”, 2011. Supervisor: Prof. Luongo Angelo.

Technical report on behalf of the International research center M&MoCS; Subject: “Analysis and simulation to evaluate the nominal operating range of the tower cranes Mod. CTT 321 (H=30, H=60, H=120)”, 2011. Supervisor: Prof. Luongo Angelo.

Technical report on behalf of the International research center M&MoCS; Subject: “Structural analysis of the Loader: *Lower deck Loader 2P 7000*”, 2010. Supervisor: Prof. Luongo Angelo.

Technical report on behalf of the Dipartimento di Ingegneria Strutturale e Geodetica (DISG) SAPIENZA Università di Roma with public competition n. 48/08 del 24/11/08; Subject: “Analysis of laminated wood truss of the Sports Hall in Cisterna di Latina” Supervisor: Prof. dell’Isola Francesco.

Conference and Seminar Presentations

11th WCCM-ECCM-ECFD 2014 Congress, Barcelona, Spain 20-25 July 2014. Conference Abstract: Experimental behavior of concrete with micro-particles under cyclic loading and effects due to frictional energy dissipation;

11th WCCM-ECCM-ECFD 2014 Congress, Barcelona, Spain 20-25 July 2014. Conference Abstract: A continuum model of cement-based materials with internal frictional dissipation;

Workshop on “Dynamics, Stability and Control of Flexible Structures”, Cagliari, Italy 13-14 June 2014. Conference Abstract: Towards Remodeling of Porous Bone Tissues Saturated with Interstitial Fluids;

4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM 2013), Montréal, Canada, July 23-26, 2013. Conference Abstract: Numerical simulation of remodeling of bone tissue and bio-resorbable material mixture with voids under different loads;

4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM 2013), Montréal, Canada, July 23-26, 2013. Conference Abstract: The influence of different geometries of matrix/scaffold on the response of a bone and resorbable material mixture with voids;

4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM 2013), Montréal, Canada, July 23-26, 2013. Conference Abstract: Models for remodeling in porous bone reconstructed tissues saturated with interstitial fluid;

4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM 2013), Montréal, Canada, July 23-26, 2013. Conference Abstract: Towards a second gradient damage model;

21st Annual International Conference on Composites or Nano Engineering (ICCE 21), Tenerife, Canary Islands, Spain, July 21-27, 2013. Conference Abstract: A model of internal frictional dissipation in concrete and mechanical effects due to micro-particles addition

21st Annual International Conference on Composites or Nano Engineering (ICCE 21), Tenerife, Canary Islands, Spain, July 21-27, 2013. Conference Abstract: Experimental evaluation of frictional energy dissipation in cement-based materials with micro-particles under cyclic loading

Workshop on “Dynamics, stability and control of flexible structure”. Senigallia, Ancona, Italy - 7 June 2013. Contribution: Reflection and transmission of plane waves at surfaces carrying material properties and embedded in second-gradient materials;

V International Conference on Computational Methods for Coupled Problems in Science and Engineering. 17-19 June, 2013 in Ibiza, Spain. Short paper: A continuum model of a mixture of bone tissue and bio-resorbable material for simulating mass density redistribution in a 2D sample;

8th European Solid Mechanics Conference, Graz, Austria, July 9-13, 2012. Conference Abstract: Buckling of an Elastic Hemispherical Shell with an Obstacle;

Conferences and Workshops organized

EUROMECH Colloquium 563 at International Research Center M&MoCS on “Generalized Continua and their Application to the Design of Composites and Metamaterials”, Cisterna di Latina, Italy, March 17-21, 2014.

Sperlonga Summer School on Mechanics and Engineering Sciences: “Dynamics, Stability and Control of Flexible Structures” in Sperlonga, Italy, September 23-27 2013.

Workshop at International Research Center M&MoCS on “New Trends in Continuum Mechanics”, Cisterna di Latina, Italy, February 13-19, 2013.

Sperlonga Summer School on Mechanics and Engineering Sciences: “Mechanics and Thermodynamics of Soft Active Matter” in Sperlonga, Italy, September 24-28 2012.

Workshop at International Research Center M&MoCS on “Second gradient and generalized continua”, Cisterna di Latina, Italy, March 12-16, 2012.

Symposium at International Research Center M&MoCS on “Mechanics of fractures and second gradient theory”, Cisterna di Latina, Italy, July 4-8 2011.

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