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**Organization type:** Politecnico di Torino

**Role:** Researcher

**Department name:** (Politecnico di Torino) DISTR

**Education:** Civil Engineering Degree, Ph.D. in Structural Engineering

**Work experience in the last 5 years:** January 2005-December 2006: Post-Doctoral Research Fellow (ICAR/08–Structural Mechanics) at the Department of Structural and Geotechnical Engineering of the Politecnico di Torino with the following theme: "Interface mechanical problems in heterogeneous materials".

January 2007-July 2007: Post-Doctoral Research Fellow (ICAR/08– Structural Mechanics) at the Department of Structural and Geotechnical Engineering of the Politecnico di Torino with the following theme: "Innovative Learning and Training on Fracture".

August 2007- : Assistant Professor of Structural Mechanics at the Department of Structural and Geotechnical Engineering of the Politecnico di Torino.

Teaching activities at Politecnico di Torino

Course of "Materials and Fracture Mechanics" (5 credits Master in Civil Engineering PhD in Structural Engineering)

Course of "Structural Mechanics II" (10 credits Master in Civil Engineering)

Course of "Theory of Structures" (5 credits Master in Civil Engineering)

Awards

•September 2002 - Winner of the "Premio Optime - Riconoscimento al merito nello studio", conferred by the Industrial Union of Turin, in collaboration with the Turin University and the Politecnico di Torino.

•August 2008 - Winner of the Prize "Support for Young Researchers", conferred by the Politecnico di Torino to the first 50 young researchers (younger than 40) who had the best publication rate in the period 2005-2008 (3,000 Euro).

**Technical, organizational and social skills:** March 20-25, 2005 - Member of the Local Organizing Committee of the 11th International Conference of Fracture, held in Turin, Italy (1090 participants). Collaboration to the realization of the scientific programme and to the preparation of the Special Issue of the journal "International Journal of Fracture", containing the Plenary Lectures of the Conference (Guest-Editors: Prof. A. Carpinteri, Y.-W. Mai and R.O. Ritchie). Session Chairman of the Topic "Scaling

Laws & Size Effects" in the Mini-Symposium on "Complexity, Scaling and Non-Linearity in the Mechanics of Advanced Materials", and collaboration to the realization of the corresponding Special Issue of the journal "Strength, Fracture and Complexity" (Guest-Editor: Prof. A. Carpinteri). Session Chairman of the Topic "Debonding".

July 3-10, 2006 - Session Chairman of the Topic "Fatigue and Fracture" at the 16th European Conference of Fracture, held in Alexandroupolis, Greece (728 participants).

November 5-9, 2006 - Session Chairman at the IUTAM Symposium on Computational Contact Mechanics, held in Hannover, Germany (29 participants).

**Loans managed for the last 5 years:** 2006-2008 - Scientific Secretary and member of the Scientific and Organizing Committee of the Leonardo da Vinci EU Research Project "Innovative Learning and Training on Fracture" (ILTOf), Project Leader: Prof. A. Carpinteri.

**Publications for the last 5 years, licences or other products of research:** [1] G. Zavarise, M. Borri-Brunetto, M. Paggi: "On the reliability of microscopical contact models", *Wear*, Vol. 257 (3-4), 229-245, 2004. doi:10.1016/j.wear.2003.12.010

[2] A. Carpinteri, M. Paggi: "Size-scale effects on the friction coefficient", *International Journal of Solids and Structures*, Vol. 42 (9-10), 2901-2910, 2005. doi:10.1016/j.ijsolstr.2004.10.001

[3] A. Carpinteri, M. Paggi, G. Zavarise: "Snap-back instability in micro-structured composites and its connection with superplasticity", *Strength, Fracture and Complexity*, Vol. 3 (2-4), 61-72, 2005.

[4] A. Carpinteri, M. Paggi: "On the asymptotic stress field in angularly nonhomogeneous materials", *International Journal of Fracture*, Vol. 135 (1-4), 267-283, 2005. doi:10.1007/s10704-005-4087-4

[5] A. Carpinteri, M. Paggi, N. Pugno: "Numerical evaluation of generalized stressintensity factors in multi-layered composites", *International Journal of Solids and Structures*, Vol. 43 (3-4), 627-641, 2006. doi:10.1016/j.ijsolstr.2005.06.009

[6] A. Carpinteri, M. Paggi: "Influence of the intermediate material on the singular stress field in tri-material junctions", *Materials Science*, Vol. 42 (1), 95-101, 2006. doi:10.1007/s11003-006-0061-17

[7] A. Carpinteri, M. Paggi, N. Pugno: "An analytical approach for fracture and fatigue in functionally graded materials", *International Journal of Fracture*, Vol. 141 (3-4), 535-547, 2006. doi:10.1007/s10704-006-9012-y

[8] A. Carpinteri, M. Paggi: "Analytical study of the singularities arising at multimaterial interfaces in 2D linear elastic problems", *Engineering Fracture Mechanics*, Vol. 74 (1-2), 59-74, 2007. doi:10.1016/j.engfracmech.2006.01.030

[9] G. Zavarise, M. Borri-Brunetto, M. Paggi: "On the resolution dependence of micromechanical contact models", *Wear*, Vol. 262 (1-2), 42-54, 2007. doi:10.1016/j.wear.2006.03.044

[10] A. Carpinteri, G. Lacidogna, M. Paggi: "Acoustic emission monitoring and numerical modeling of FRP delamination in RC beams with non-rectangular crosssection", *RILEM Materials & Structures*, Vol. 40 (6), 553-566, 2007. doi:10.1617/s11527-006-9162-4

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- [12] A. Carpinteri, M. Paggi: "Numerical analysis of fracture mechanisms and failure modes in bi-layered structural components", *Finite Elements in Analysis and Design*, Vol. 43 (11-12), 941-953, 2007. doi:10.1016/j.finel.2007.06.003
- [13] F. Indelicato, M. Paggi: "Specimen shape and the problem of contact in the assessment of concrete compressive strength", *RILEM Materials & Structures*, Vol. 41 (2), 431-441, 2008. doi:10.1617/s11527-007-9256-7
- [14] M. Paggi, A. Carpinteri: "On the stress singularities at multimaterial interfaces and related analogies with fluid dynamics and diffusion", *ASME Applied Mechanics Reviews*, Vol. 61 (2), 1-22, 2008. doi:10.1115/1.2885134
- [15] A. Carpinteri, M. Paggi, G. Zavarise: "The effect of contact on the decohesion of laminated beams with multiple microcracks", *International Journal of Solids and Structures*, Vol. 45 (1), 129-143, 2008. doi:10.1016/j.ijsolstr.2007.07.012
- [16] M. Ciavarella, J.A. Greenwood, M. Paggi: "Inclusion of "interaction" in the Greenwood & Williamson contact theory", *Wear*, Vol. 265 (5-6), 729-734, 2008. doi:10.1016/j.wear.2008.01.019
- [17] A. Carpinteri, M. Paggi: "Thermo-elastic mismatch in nonhomogeneous beams", *Journal of Engineering Mathematics*, Vol. 61 (2-4), 371-384, 2008. doi:10.1007/s10665-008-9212-8
- [18] A. Carpinteri, M. Paggi: "Size-scale effects on strength, friction and fracture energy of faults: a unified interpretation according to fractal geometry", *Rock Mechanics and Rock Engineering*, Vol. 41 (5), 735-746, 2008. doi:10.1007/s00603-007-0148-5
- [19] M. Ciavarella, M. Paggi, A. Carpinteri: "One, no one, and one hundred thousand crack propagation laws: a generalized Barenblatt and Botvina dimensional analysis approach to fatigue crack growth", *Journal of the Mechanics and Physics of Solids*, Vol. 56 (12), 3416-3432, 2008. doi:10.1016/j.jmps.2008.09.002
- [20] A. Carpinteri, M. Paggi: "A fractal interpretation of size-scale effects on strength, friction and fracture energy of faults", *Chaos, Solitons and Fractals*, in press. doi:10.1016/j.chaos.2007.01.075
- [21] A. Carpinteri, M. Corrado, G. Mancini, M. Paggi: "A numerical approach to modelling size effects on the flexural ductility of RC beams", *RILEM Materials and Structures*, in press. doi:10.1617/s11527-008-9454-y
- [22] M. Paggi, A. Carpinteri: "Fractal and multifractal approaches for the analysis of crack-size dependent scaling laws in fatigue", *Chaos, Solitons and Fractals*, in press. doi:10.1016/j.chaos.2007.08.068.

**Type of the role in the search:** Researcher