

## **Prof. Roberta Massabò**

Professor of Solid and Structural Mechanics, Dept. of Civil, Chemical and Environmental Engineering, University of Genova, UNIGE, Italy (since 2016).

**Current institutional appointment:** coordinator, Ph.D. program in Civil, Chemical and Env. Engrg. (2018-present).

**Previous institutional appointments:** Vice-Chair, dept. of Civil, Chemical and Environmental Engineering, UNIGE (2012-2018); coordinator of the Ph.D. curriculum in Structural and Geotechnical Engineering, Mechanics and Materials, department delegate for international mobility and for teaching (2013-2018).

### **Previous Academic Appointments:**

- Associate Professor, UNIGE (2000-2015);
- Associate Professor (tenure track), Northwestern University, IL, USA (2001-2003)
- Adjunct Professor, Northwestern University, IL USA (2004-05)
- Assistant Professor, UNIGE (1992-1999).

### **Education:**

- Ph. D. degree, Structural Mechanics, Politecnico di Torino, 1994
- Laurea degree, Magna cum Laude, (five years degree with a research thesis), UNIGE, 1990.
- Liceo Scientifico Vieusseux, cum Laude, Imperia, 1985.

### **Fellowships, honors:**

- MTS Chair for visiting professor in Geomechanics, University of Minnesota, USA, 2009; Fellow of the Searle Center for Teaching Excellence, Northwestern University, 2003; Fulbright Visiting Scholar Fellowship, UCSB, 1995; Fulbright Occasional Lecturer Program Award, 1995; Dignità di Stampa award, final research thesis, MS degree, 1990.

### **Visiting professor/Scholar:**

- University of Minnesota, USA (2009); Russian Academy of Sciences (2003); Northwestern University (2001-2003; 2004); Cornell University, NJ (2001); Cambridge University, UK (1999); University of California Santa Barbara, CA, (1995-1999); Rockwell Science Center/Teledyne, CA (1997-98-99).

### **Research interests:**

- Mechanics of materials and structures, fracture and delamination mechanics, mechanics of composites and advanced materials, biomechanics, analytical and computational mechanics.

### **Publications:**

- more than 150 scientific publications in int. ISI journals, international books and proceedings.
- Metrics (Scopus) June 2021: H-Index = 19; Citations: 1099

### **Professional service:**

- Member of the Editorial Advisory Board of the Journal of Composite Materials, Sage, (2007-present)
- Guest Editor of special issue on Mechanics of Compos. Structures, Meccanica, 2015
- Coordinator of the Executive Committee of the Mechanics of Materials division of AIMETA, 2013-2015
- Invited General Lecturer: ECCOMAS Thematic Conference Composites 2021, Gothenburg, 2021; 22nd ICTAM Conference, Adelaide, 2008; 17th European Conference on Fracture, Brno, 2008; DRaF 2014 and DRaF 2016, Ischia (Int. Symp. on Dynamic Response and Failure of Compos. Materials)
- Member of Scientific Committees of Int. Conferences on Fracture/Composites: ICF15, Atlanta (2023); ICCM22, Melbourne (2019), ICF14, Rhodes (2017), ICLLS, Torino (2016), ECF16, Brno (2006), ICF11, Torino (2005)
- Organizer of mini-symposia at twelve international conferences in mechanics

### **Grants and Research Support (2014-2024)**

- Co-Principal Investigator (with DTU) and National Coordinator, Mitigation of Sandwich Debond Damages under Influence of Impact and Low Temperatures for Robust Naval and Aircraft Structures, U.S. Office of Naval Research (Solid Mechanics division and aircraft division), ONR Global, ONR BAA Announcement #N00014-21-S-B001, Basic and Applied Scientific Research. Duration: 2021-2024.
- Principal Investigator and National Project Coordinator, grant no. N00014-17-1-2914, "Mechanics-based modeling of naval composites in the design for mitigation of extreme loadings and environments", Long Range Broad Agency

Announcement (BAA), ONR BAA Announcement #N00014-17-S-B001, 2017-2020.

- Principal Investigator and National Project Coordinator, grant no. N00014-14-1-0254, "Survivability of marine composites and structures under impact and blast in extreme environments", Long Range Broad Agency Announcement (BAA), ONR BAA Announcement # ONRBAA14-001, 2014-2017.

#### **Grant and Research support (until 2014)**

- Principal Investigator and National Project Coordinator, research programs funded by: U.S. Office of Naval Research (2004-2014), Eur. Office U.S. Army (2000-2002), MIUR PRIN2004 (2004-2006), U.S. Department of Transportation, 2001-2003, Northwestern University, 2001-2003, NATO Collaborative Research grants (1998-2000; 2000-2003), Rockwell Scientific, USA; Teledyne, CA, USA.

#### **Teaching activities abroad:**

Northwestern University, USA: Mechanics of Fracture (40h, PhD level, 2003); Uncertainty Analysis (40h, PhD and MS level, 2003); Theory of Structures (42h, undergraduate level, 2003); Structural Steel Design (42h, undergraduate level, 2001-2003)

#### **Selected publications (15):**

- Massabò, R., Upper and lower bounds for the parameters of one-dimensional theories for sandwich fracture specimens, (2021) *Journal of Applied Mechanics*, <https://doi.org/10.1115/1.4049141>
- Monetto, I., Massabò, R., An analytical solution for the inverted four-point bending test in orthotropic specimens (2021) *Engineering Fracture Mechanics*, 245, 107521, DOI: [10.1016/j.engfracmech.2020.107521](https://doi.org/10.1016/j.engfracmech.2020.107521)
- Ustinov, K., Massabò, R., Lisovenko, D. Orthotropic strip with central semi-infinite crack under arbitrary loads applied far apart from the crack tip. Analytical solution, *Engineering Failure Analysis*, 110 (104410), 2020. <https://doi.org/10.1016/j.engfailanal.2020.104410>
- Massabò, R., Darban, H., Mode II dominant fracture of layered composite beams and wide-plates: a homogenized structural approach, (2019) *Engineering Fracture Mechanics*, 213, 280-301. <https://doi.org/10.1016/j.engfracmech.2019.03.002>
- Massabò, R., Propagation of Rayleigh-Lamb waves in multilayered plates through a multiscale structural model, *Int. Journal of Solids and Structures*, 124, 2017, 108-124. <https://doi.org/10.1016/j.ijsolstr.2017.06.020>
- Darban H., R. Massabò, Thermo-elastic solutions for wide plates and beams with interfacial imperfection through the transfer matrix method, *Meccanica*, 2017, 1-19, <https://doi.org/10.1007/s11012-017-0657-6>.
- Massabò, R., and Campi, F., Assessment and correction of theories for multilayered plates with imperfect interfaces, *Meccanica* (2015), <https://doi.org/10.1007/s11012-014-9994-x>.
- Massabò, R., and Campi, F., An efficient approach for multilayered beams and wide plates with imperfect interfaces and delaminations, *Composite Structures* 116 (2014) 311-324. <https://doi.org/10.1016/j.compstruct.2014.04.009>.
- Massabò, R., and Cavicchi, A., Interaction effects of multiple damage mechanisms in composite sandwich beams subjected to time dependent loading, *Int. Journal of Solids and Structures*, 49, 2012, 720-738. <https://doi.org/10.1016/j.ijsolstr.2011.11.012>
- Andrews, M.G., Massabò, R., (2007) The effects of shear and near tip deformations on energy release rate and mode mixity of edge-cracked orthotropic layers, *Eng. Fracture Mechanics*, 74, 2700-2720. <https://doi.org/10.1016/j.engfracmech.2007.01.013>
- Andrews, M.G., Massabò, R., and Cox, B.N., (2006) Elastic interaction of multiple delaminations in plates subject to cylindrical bending, *International Journal of Solids and Structures*, 43(5), 855-886. <https://doi.org/10.1016/j.ijsolstr.2005.04.025>
- Gambarotta, L., Massabò, R., Morbiducci, R., Raposio, G., and Santi, P., (2005), In vivo experimental testing and model identification of human scalp skin, *Journal of Biomechanics*, 38, 2237-2247, DOI: [10.1016/j.jbiomech.2004.09.034](https://doi.org/10.1016/j.jbiomech.2004.09.034).
- Rugg, K.L., Cox, B.N. and Massabò, R. (2002), Mixed mode delamination of polymer composite laminates reinforced through the thickness by z-fibers, *Composites, part A*, 33/2, 177-190. [https://doi.org/10.1016/S1359-835X\(01\)00109-9](https://doi.org/10.1016/S1359-835X(01)00109-9)
- Massabò, R., and Cox, B.N., (1999), Concepts for bridged mode II delamination cracks, *Journal of the Mechanics and Physics of Solids*, 47(6), 1265-1300. [https://doi.org/10.1016/S0022-5096\(98\)00107-0](https://doi.org/10.1016/S0022-5096(98)00107-0)
- Carpinteri, A., and Massabò, R. (1997) Continuous versus discontinuous bridged crack model for fiber-reinforced materials in flexure, *Int. Journal Solids and Structures*, 34, 2321-2338, [doi: 10.1016/S0020-7683\(96\)00129-1](https://doi.org/10.1016/S0020-7683(96)00129-1).