

Barbara Ferracuti, PhD

Curriculum Vitae

Associate Professor of Structural Engineering
UNICUSANO
School of Engineering
Niccolò Cusano University
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PERSONAL INFORMATION

Place and date of birth: Messina, 1975/11/15
Citizenship: Italian
Gender: Female

EDUCATION

Ph.D. Structural Engineering, University of Bologna, 2004
Dissertation *Strengthening of RC structures by RFP: experimental analysis and numerical modeling*
Advisors Professor Marco Savoia (University of Bologna)
Prof. I. Elishakoff (Florida Atlantic University, USA)
Prof. C. Mazzotti (University of Bologna)
Prof. R. Pinho (University of Pavia).
M.Sc.Engg. (*Cum Laude*) Civil Engineering, University of Bologna, 2002.

ACADEMIC EXPERIENCE

2015- Today: Current position Associate Professor of Structural Engineering, (School of Engineering, Niccolò Cusano University).

2011 - 2015: Assistant Professor of Structural Engineering, (School of Engineering and Architecture, University of Bologna).

On 14 **December 2011**, she was nominated “Chief Operating Officer” of the Interdepartmental Center of Industrial Research (CIRI) for Building and Constructions, University of Bologna. Such function, as defined by the CIRI statutes, requires both technical/scientific civil engineering competencies and industrial knowledge, including management skills transferring the research results. Last year's industrial research was mainly focused on numerical and experimental analyses for new construction systems, and developing improvements of the structural systems performance.

2009 – 2010: two research contracts with the University of Bologna.

2007 – 2008: Third year renewal of the research contract with the European Centre for Training and Research in Earthquake Engineering (EUCENTRE), Director Prof. G. M. Calvi. The contract covered: “Evaluation, through extensive

parametric research of the reliability of Adaptive Pushover techniques for the 3D seismic response of existing constructions in R.C.”

- 2006 – 2008:** Post-doctoral fellowship, University of Bologna.
- 2006 – 2007:** The second year renewal of the research contract with the European Centre for Training and Research in Earthquake Engineering (EUCENTRE), Director Prof. G. M. Calvi.
- 2006:** She stipulated a research contract with the DISTART department, University of Bologna, for “Numerical analyses of techniques for damping of seismic vibrations, comparing theoretical models with the Italian design code 3274/2004”. The research project was financed by the Civil Protection Department Reluis line 7 “Isolation techniques and the monitoring of structures and infrastructures”.
- 2005 – 2006:** She stipulated a six month research contract with the European Centre for Training and Research in Earthquake Engineering (EUCENTRE), Director Prof. G. M. Calvi. The contract covered: “Valuation, through extensive parametric research of the reliability of adaptive pushover techniques valuating the seismic response of existing constructions in R.C.”.

Teaching assignment

She will hold the chair of the following academic courses:

Academic Year 2015/2016: course “*Structural Engineering*” – for the Civil Engineering Bachelor degree at the Niccolò Cusano University.

Academic Year 2015/2016: course “*Design of Structures*” – for the Civil Engineering Master degree at the Niccolò Cusano University.

Academic Year 2015/2016: course “*Design of Timber Structures*” – for the Civil Engineering Master degree at the Niccolò Cusano University.

She held the chair of the following academic courses:

Academic Year 2014/2015: course “*Design of Timber Structures*” – for the Civil Engineering Master degree at the University of Bologna.

Academic Year 2014/2015: course “*Sustainability in Construction*” – for the Civil Engineering Master degree at the University of Bologna.

Academic Year 2013/2014: course “*Sustainability in Construction*” – for the Civil Engineering Master degree at the University of Bologna.

Academic Year 2012/2013: course “*Earthquake engineering*” – for the Civil Engineering Master degree at the University of Bologna.

Academic Years 2006/2007 2005/2006: course “*Historical Development of Construction Theories and Techniques (ICAR 09)*” at the Faculty of Architecture, University of Catania.

In addition between 2003 and 2012 she acted as assistant professor lecturing during a significant number of academic courses, chaired by Prof. M. Savoia, Prof. C. Mazzotti, Prof. C. Ceccoli, Prof. A. Benedetti. Finally, she mentored numerous students in the preparation of their final thesis in obtaining their bachelor degree.

Research interests

1 COMPOSITE MATERIALS

1.1 RC structural elements strengthened with FRP composites: cracking and deformability issues, for short- and long-term loadings; 1.2 FRP-concrete interface laws and debonding problems; 1.3 Confinement with FRP of RC columns under compression and flexure.

2 RELIABILITY

2.1 Fuzzy theories for structural analysis; 2.2 Structural reliability against stability in the presence of uncertain data;

3. SEISMIC ENGINEERING

3.1 Static/dynamic analysis of RC structures strengthened with FRP; 3.2 Reliability and fragility curves for RC structures; 3.3 Pushover analysis for irregular structures.

Achievement of awards for scientific activity

In 2011 the journal paper "An experimental study on delamination of FRP plates bonded to concrete", Construction and Building Materials, V. 22(7), July 2008, pp. 1409-1421 by Mazzotti, C.; Savoia, M.; Ferracuti, B. was fifth on the "Top 25 hottest articles", the 25 most downloaded papers on that journal.

In the period July to September 2011, the same paper was at the first position of the "Top 25 hottest articles" (see file attached).

Main Publications on International Journals

1. Mazzotti, C., Ferracuti, B., and Bellini, A. (2015). "Experimental bond tests on masonry panels strengthened by FRP." *Composites Part B: Engineering*, 10.1016/j.compositesb.2015.05.019, 223-237. Online publication date: 1-Oct-2015.
2. Ceroni F., Ferracuti B., Pecce M., Savoia M. (2014), Assessment of a bond strength model for FRP reinforcement externally bonded over masonry blocks, *Composites Part B: Engineering*, Vol. 61, May 2014, p.147-161
3. Buratti N., Ferracuti B., Savoia M. (2013), Concrete crack reduction in tunnel linings by steel fibre-reinforced concretes, *Construction and Building Materials*, Volume 44, July 2013, p .249-259, ISSN: 0950-0618, doi: 10.1016/j.conbuildmat.2013.02.063.
4. Savoia M., Mazzotti C., Buratti N., Ferracuti B., Bovo M., Ligabue V., Vincenzi L. (2012). Damages and collapses in industrial precast buildings after the Emilia earthquake. *Ingegneria Sismica*, vol. 2-3, p. 120-131, ISSN: 0393-1420
5. Savoia M., Mazzotti C., Buratti N., Ferracuti B., Bovo M., Ligabue V., Vincenzi L. (2012). Danneggiamento e crolli negli edifici prefabbricati a seguito del terremoto dell'Emilia. *Inarcos*, vol. 728, p. 35-45, ISSN: 0391-6537.
6. Buratti N., Ferracuti B., Savoia M. Antonioni G., Cozzani V.(2012). A Fuzzy-Sets Based Approach for Modelling Uncertainties in Quantitative Risk Assessment of Industrial Plants Under Seismic Actions. In: *Chemical engineering transactions. Chemical engineering transactions*, p. 105-110, Milano:S. Pierucci, J.J. Klemes, E. De Rademaeker, V. Cozzani, ISBN: 9788895608174, ISSN: 1974-9791, doi: 10.3303/CET1226018
7. Savoia M., Mazzotti C., Buratti N., Ferracuti B., Bovo M., Ligabue V., Vincenzi L. (2012). Terremoto dell'Emilia - danni ad edifici produttivi a struttura prefabbricata. *Progettazione Sismica*, vol. 3, p. 109-119, ISSN: 1973-7432.
8. Buratti N., Ferracuti B., Savoia M. (2010). Response Surface with random factors for seismic fragility of reinforced concrete frames. *Structural Safety*, vol. 32, p. 42-51, ISSN: 0167-4730
9. Mazzotti C., Savoia M., Ferracuti B. (2009). A new single-shear set-up for stable delamination tests on FRP-concrete joints. *Construction and Building Materials*, vol. 23(4), p. 1529-1537, ISSN: 0950-0618.
10. Savoia M., Ferracuti B., Vincenzi L. (2009). Inverse analysis for calibration of FRP-concrete interface law. *Advances In Structural Engineering*, vol. 5, p. 613-625, ISSN: 1369-4332
11. Ferracuti B., Pinho R., Savoia M., Francia R. (2009). Verification of Displacement-based Adaptive Pushover through multi-ground motion incremental dynamic analyses. *Engineering Structures*, vol. 31, p. 1789-1799, ISSN: 0141-0296.

12. Buratti N., Ferracuti B., Savoia M. (2009). Steel fibre reinforced concrete for crack control of tunnel linings. In: *Advances in Reinforced Concrete and Precast Constructions*. p. 103-112, BRESCIA: Starrylink Editrice, ISBN: 978-88-96225-29-5.
13. Mazzotti C., Savoia M., Ferracuti B. (2008). An Experimental Study on Delamination of FRP Plates Bonded to Concrete. *Construction and Building Materials*, vol. 22, p. 1409-1421, ISSN: 0950-0618
14. Ferracuti B., Savoia M., Mazzotti C. (2007). Interface law for FRP-concrete delamination. *Composite Structures*, vol. 80 (4), p. 523-531, ISSN: 0263-8223
15. Ferracuti B., Savoia M., Mazzotti C. (2006). A numerical model for FRP-concrete delamination. *Composites. Part B, Engineering*, vol. 37, p. 356-364, ISSN: 1359-8368
16. Elishakoff I., Ferracuti B. (2006). Four Alternative Definitions of the Fuzzy Safety Factor. *Journal of Aerospace Engineering*, vol. 19, p. 281-287, ISSN: 0893-1321, doi: 10.1061/(ASCE)0893-1321(2006)19:4(281)
17. Elishakoff I., Ferracuti B. (2006). Fuzzy Sets Based Interpretation of the Safety Factor.. *Fuzzy Sets and Systems*, vol. 157, p. 2495-2512, ISSN: 0165-0114, doi: 10.1016/j.fss.2006.06.009
18. Savoia M., Ferracuti B., Mazzotti C. (2005). Creep deformation of fiber reinforced plastics-plated reinforced concrete tensile members. *Journal of Composites For Construction*, vol. 9(1), p. 63-72, ISSN: 1090-0268.

I authorize the processing of personal data pursuant to Legislative Decree. 30th June 2003, No 196.

Rome, 29/07/2015.

B Ferracuti