

**Sara Cattaneo**  
**Curriculum Vitae**

Born in Bergamo (Italy) - 15/12/1971

Organization: **Politecnico di Milano**

Current Position and Department:

**Associate Professor, Dept. ABC – Architecture, Built environment, Construction engineering**

### **EDUCATION**

- Ph.D. in Structural Engineering (2001) Politecnico di Milano (Milan, Italy)
- 20-24 November 1998, Training on optical methods for mechanical engineering, Ecole de mines, Saint Etienne – France.
- Master school in R.C. structures “F.lli Pesenti” (1996-1997), Politecnico di Milano (Milan, Italy)
- Degree in Civil Engineering, Politecnico di Milano (Milan, Italy) (1996)

### **PROFESSIONAL EXPERIENCE**

- Since 21/7/2017 designated member of ITC-CNR (Italian TAB) into the EOTA Fixing Expert Group
- Since 1/1/2013 Associate Professor, Dept. ABC–Architecture, Built environment, Construction engineering – Politecnico di Milano.
- Since 10/1/2014 Technical advisor of the Structural Anchor section of the Testing Material and Structures laboratory (LPMSC)–Politecnico di Milano.
- Since 10/9/2014 designated member of STC (Italian TAB) –Ministry of Infrastructures and Transport into the EOTA WG ETAG001
- Since 2019 Member of the Ph.D. Board “Architecture, Built environment, Construction engineering” – Politecnico di Milano.
- 2017-2018 – Member of the Ph.D. Board “Ingegneria Civile -Ambientale e Architettura”, Università degli Studi di Trieste.
- 2013-2018 – Member of the Scientific Committee Dept. ABC– Architecture, Built environment, Construction engineering – Politecnico di Milano.
- 1/7/2011-31/12/2012 Associate Professor, Dept. of Structural Engineering - Politecnico di Milano.
- 2/1/2002-30/6/2011 Assistant Professor, Dept. of Structural Engineering - Politecnico di Milano.
- 2/1/2004-31/12/2012 Technical Head of the Structural Anchor – CE Marking section of the Testing Material laboratory (LPM) – Dep. of Structural Engineering – Politecnico di Milano.
- 1.02.2001-31.12.2001 Research Associate, Dep. of Structural Engineering – Politecnico di Milano.

### **RESEARCH STAGES ABROAD**

- August–December 1999, during PhD, as Visiting scholar, at the Department of Civil Engineering, University of Minnesota, Minneapolis, Prof. J.F. Labuz.
- July-September 2004, as Visiting researcher, at the Department of Civil Engineering, University of Minnesota, Minneapolis, Prof. J.F. Labuz.

### **TEACHING ACTIVITY**

Classes taught:

- Strengthening of historical buildings, Faculty of Architecture Leonardo, Mantua, Politecnico di Milano: since 2001-2002
- Structures, Faculty of Architecture Leonardo, Politecnico di Milano: since 2002-2003;

- Concrete and new materials, Master School for R.C. Structures, Department of Structural Engineering, Politecnico di Milano: since 2003-2004.

Seminar in the following classes (since 2000) at Politecnico di Milano Italy:

- Structures, Concrete toughness and ductility, High performance concrete, Mechanics of the materials and fracture, Concrete and new materials.

Teaching activity in several refresher courses on Anchor behaviour and design, Strengthening of structures, High performance and Self Compacting Concrete properties and applications, Acceptance test plan activities.

Supervisor of several theses at the Faculty of Engineering and of Architecture.

#### **REFEREE DUTIES:**

A.C.I. Structural Journal, A.C.I. Material Journal, Construction and Building Materials, ASCE Materials in Civil Engineering, ASCE Journal of Structural Engineering, ASCE Journal of Bridge Engineering, Construction and Building Materials, Engineering Fracture Mechanics, Engineering Structures, Structures, Composite Structures, Materials, Materials & Structures, Advances in Civil Engineering.

Editor of the Topical Issue "Concrete and Construction Materials" - *Materials* ISSN 1996-1944

Guest Editor Special Issue "Advances in Building Materials and Concrete" - *Applied Sciences* ISSN 2076-3417

Research project of the Austrian Science Fund (FWF) and of Georgian National Science Foundation.

#### **RESEARCH SPECIALITIES**

- Non-conventional experimental techniques: AE (acoustic emission) and ESPI (Electronic Speckle Pattern Interferometry).
- Constitutive laws for quasi-brittle materials
- Non-linear fracture mechanics applications: size effects
- Effects of temperature on the concrete constitutive law
- Steel to concrete bond behavior
- High Performance and Self-Compacting Concrete: constitutive behavior and structural applications
- Cracking and local constitutive relations for beams
- Damage and mechanical properties of natural stones in heritage buildings
- Post-Installed anchors, Pre-installed anchors, anchors channels.

Participant (2004-2006) to Working Group EOTA (European Organisation for Technical Approvals) to develop ETAG (Guidelines) on Structural anchors.

Member of the Fixing Expert Group EOTA (since 2014)

#### **PROJECTS:**

Funding provided by Italian Ministry of Higher Education and Research-MIUR and European Community.

Participation to several projects at national level and supervisor of several research contracts at the Department of Structural Engineering (up to 2012) and at the Dept. ABC–Architecture, Built environment, Construction engineering (since 2013)– Politecnico di Milano

#### **CERTIFICATION ACTIVITY**

Technical head for structural anchors CE marking.

ETA issued according to ETAG001, ETAG014, CUAP06.01/01, EAD 330008-02-0601.

#### **SELECTED PAPERS**

Author of more than 100 papers

1. Cattaneo S. & Rosati G., *Effect of different boundary conditions in direct tensile tests: Experimental Results*, Magazine of Concrete Research, Vol.51, N.5, 1999, pp.365-374 (ISSN 0024-9831).
2. Biolzi L., Cattaneo S. & Guerrini G.L., *Fracture of plain and fiber reinforced concrete slabs with EA and ESPI monitoring*, Applied Composite Materials, Vol. 7 (1), 2000, pp.1-12 (ISSN 0929-189X).
3. Biolzi L., Cattaneo S. & Rosati G., *Flexural/tensile Strength Ratio in Rock-Like Materials*, Rock Mechanics Rock Engineering, Vol.34, N. 3, 2001, pp. 217-233 (ISSN 0723-2632).
4. Labuz J.F., Cattaneo S. & Chen L.H., *Acoustic emission at failure in quasi-brittle materials*, Construction and Building Materials, Vol.15, 2001, pp.225-233 (ISSN 0950-0618).
5. Cattaneo S. & Labuz J.F., *Damage of marble from cyclic loading*, ASCE J. Materials in Civil Engineering, Vol. 13, N.6, 2001, pp.459-465 (ISSN 0899-1561).
6. Biolzi L., Cattaneo S. & Labuz J.F., *Tensile and bending tests on very high performance concrete*, ACI-SP201: Fracture Mechanics for Concrete Materials: Testing and Applications, Ed. C. Vipulanandan, W.H. Gerstle, 2001, pp.229-242 (ISBN 0-87031-039-9).
7. Cattaneo S. & Rosati G., *Strength and size effect in Fiber-reinforced materials*, ACI-SP216: Innovations in Fiber-Reinforced Concrete for Value, Ed. N. Banthia, M. Criswell, Tatnall P., Folliard K., 2003, pp. 63-78 (ISBN 0-87031-126-3)
8. Cattaneo S., *Wedge-type expansion anchors in high-performance concrete*, ACI Structural J., Vol. 104, N.2, 2007, pp.191-198 (ISSN 0889-3241).
9. Biolzi L., Cattaneo S., & Rosati G., *Evaluating residual properties of thermally damaged concrete*, Cement and Concrete Composites, Vol. 30, N.10, 2008, pp. 907-916, (ISSN: 0958-9465).
10. Cattaneo S., Rosati G. & Banthia N., *A simple model to explain the effect of different boundary conditions in direct tensile tests*, Construction and Building Materials, Vol. 23, N.1, 2009, pp.129-137 (ISSN 0950-0618).
11. Cattaneo S. & Rosati G., *Bond between steel and self-consolidating concrete: experiments and modelling*, ACI Structural J., Vol.106, 2009, pp. 540-550 (ISSN 0889-3241).
12. Biolzi L., Cattaneo S. & Rosati G., *Progressive Damage and Fracture of Laminated Glass Beams*, Construction & Building Materials, doi: 10.1016/j.conbuildmat.2009.09.007, 24, 2010, pp. 577-584.
13. Piccinin R., Ballarini R. & Cattaneo S., *Linear Elastic Fracture Mechanics Pull Out Analyses of Headed Anchors in Stressed Concrete*, J. Eng. Mech., ASCE, doi:10.1061/(ASCE)EM.1943-7889.0000120, Vol.136 No 6, 2010, pp.761-768.
14. Cattaneo S & Biolzi L., *Assessment of Thermal Damage in Hybrid Fiber Reinforced Concrete*, ASCE J. of Materials in Civil Engineering doi:10.1061/(ASCE)MT.1943-5533.0000078, Vol. 22 No 9, 2010, pp.836-845.
15. Cattaneo S., Mola F., *Assessing the Quality Control of Self Consolidating Concrete Properties*, Journal of Construction Engineering and Management, ASCE, Vol. 138 No 2, 2012 doi:10.1061/(ASCE)CO.1943-7862.0000410.
16. Piccinin R., Ballarini R. & Cattaneo S., *Pullout Capacity of Headed Anchors in Prestressed Concrete*, J. Eng. Mech., ASCE, doi:10.1061/(ASCE)EM.1943-7889.0000, Vol. 138 No7, 2012, pp.877-887.
17. Cattaneo S., Giussani F., Mola F., *Flexural behavior of reinforced, prestressed and composite self-consolidating concrete beams*, Construction & Building Materials, 36, 2012, pp. 826-837.
18. Cattaneo S., Giussani F., *Shear behaviour of R.C. beams with water-stop joints*, Engineering Structures, 56, 2013, pp.1775-1786.
19. Piccinin R., Cattaneo S., Biolzi L., *Breakout Capacity of Headed Anchors in Confined concrete: Experimental Evidence*, ACI Struct. J., V.110, May-June 2013, pp. 469-479.
20. Biolzi L., Cattaneo S., Mola F., *Shear and bending Response of Self-Consolidating and High-Performance Reinforced Concrete Beams*, Engineering Structures, 59, 2014, 399-410, <http://dx.doi.org/10.1016/j.engstruct.2013.10.043>.
21. Muciaccia G., Cattaneo S. Rosati G., Cangiano S., *Properties of limestone self-compacting concrete at fresh and hardened state*, European Journal of Environmental and Civil Engineering, 2015, Vol.19, No 5, 598-613, <http://dx.doi.org/10.1080/19648189.2014.960144>.
22. Barbieri G., Biolzi L., Bocciarelli M., Cattaneo S., *Pull out of FRP reinforcement from masonry pillars: Experimental and numerical results*, Composites:Part B, 69, 2015, 516-525, <http://dx.doi.org/10.1016/j.compositesb.2014.10.025>.
23. Cattaneo S., Muciaccia G., *Adhesive anchors in high-performance concrete*, Materials and structures,

(2015), DOI 10.1617/s11527-015-0677-4

24. Barbieri G., Biolzi L., Bocciarelli M., Cattaneo S., *Size and shape effect in the pull-out of FRP reinforcement from concrete*, Composite Structures Vol. 143, 2016 pp. 395-417
25. Cattaneo S., Muciaccia G., *Adhesive anchors in high-performance concrete*, Materials and structures, 49 (7), 2016, 2689-200, DOI 10.1617/s11527-015-0677-4.
26. Biolzi L., Cattaneo S., Crespi P., Giordano N., *Damage in glass-concrete composite panels*, Construction and Building Materials, 116, 2016, 235-244.
27. Biolzi L., Cattaneo S., *Response of steel fiber reinforced high strength concrete beams: Experiments and code predictions*, Cement and concrete composites, 77, 2017, 1-13.
28. Biolzi L., Bonati A., Cattaneo S., *Laminated glass cantilevered plates under static and impact loading*, Advances in Civil Engineering, 2018, <https://doi.org/10.1155/2018/7874618>
29. Bocciarelli M., Cattaneo S., Ferrari R., Ostinelli A., Terminio A., *Long-term behavior of self-compacting and normal vibrated concrete: Experiments and code predictions*, Construction and Building Materials, 168, 2018, 650-659.
30. Biolzi L., Cattaneo S., Orlando M., Piscitelli L.R., Spinelli P., *Post-failure behavior of laminated glass beams using different interlayers*, Composite Structures, 2018.
31. Cattaneo S., Locatelli A., Rago D., *Reliability of bonded anchors with different installation techniques: experimental assessment*, Asian Journal of Civil Engineering, 20-5, 2019, 681-692
32. Afroughsabet V., Biolzi L., Cattaneo S., *Evaluation of Engineering Properties of Calcium Sulfoaluminate Cement-based Concretes Reinforced with Different Types of Fibers* Materials 2019, 12(13), 2151; <https://doi.org/10.3390/ma12132151>
33. Cattaneo S., Crespi P., *Response of connections between concrete corbels and safety barriers*, Materials Materials 2019, 12(24), 4103; <https://doi.org/10.3390/ma12244103> - 08 Dec 2019
34. Biolzi L., Cattaneo S., Orlando M., Piscitelli L.R., Spinelli P., *Constitutive relationships of different interlayer materials for laminated glass*, Composite structures, 2020, <https://www.sciencedirect.com/science/article/pii/S0263822319349232>
35. Quaglioni V., Biolzi L., Cattaneo S., *Numerical assessment of laminated cantilevered glass plates with point fixings*, Glass Structures & Engineering, 2020, 10.1007/s40940-020-00119-5
36. Cattaneo S., Crespi P., Biolzi L., *Structural analysis and design of reinforced concrete bridge corbels*, Applied Sciences (ISSN: 2076-3417), 2020, V.10 (19)
37. Biolzi, L.; Cattaneo, S.; Orlando, M.; Piscitelli, L. R.; Spinelli, P., *Constitutive relationships of different interlayer materials for laminated glass*, Composite structures (ISSN: 0263-8223) 2020, V.244
38. Quaglioni, V.; Cattaneo, S.; Pettorruso, C.; Biolzi, L., *Cold bending of vertical glass plates: Wind loads and geometrical instabilities*, Engineering structures (ISSN: 0141-0296), V. 220

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