

Curriculum Vitae of Prof. Alessandro P. Fantilli Ph.D.

Born in Campobasso (Italy) on March 16, 1969

- December 1994: Master degree in Civil Engineering (110/110 cum laude) at Politecnico di Torino (Italy)
- February 1995: Award from CNR (Italian National Research Council) to study rehabilitation of damaged reinforced concrete structures
- March 1999: Ph. D. in Structural Engineering at Politecnico di Torino (Italy)
- September 1999: Research Assistant of Structural Engineering in the Department of Structural and Geotechnical Engineering of Politecnico di Torino (Italy)
- November-December 2003: JSPS (Japan Society for the Promotion of Science) Postdoctoral Fellow at the Tohoku University of Sendai (Japan)
- From November 2004 to October 2015: Assistant Professor at Dept. of Structural and Geotechnical Engineering of Politecnico di Torino (Italy)
- From October 2015: Associate Professor at Dept. of Structural, Building and Geotechnical Engineering of Politecnico di Torino (Italy)
- February-April 2017: JSPS (Japan Society for the Promotion of Science) Visiting Professor at the Tohoku University of Sendai (Japan)
- March 2017: winner of the national contest for Full Professor.

Scientific activity: research and awards

Author of more than 120 scientific papers (published on International Conferences and International Journals) concerning the nonlinear analysis of reinforced concrete structures, and structural application of high-performance fiber-reinforced cementitious concrete.

In 2013 he was awarded by the American Concrete Institute of the "ACI Wason Medal for Material Research" for his research on structural concrete.

In 2015 he was awarded by the Japan Concrete Institute of the "Best technical paper award" for the paper titled "A simplified approach for the evaluation of old concrete strength".

Scopus h-index = 13 Scopus n. citations = 418

Speaker at the following Conferences:

- XV Italian Conference on Fracture, Bari (Italy) May 3-5, 2000
- XIII CTE Conference, Pisa (Italy) November 9-11, 2000
- FRAMCOS-4, Cachan (France) May 28 – June 2, 2001
- XV AIMETA Conference, Taormina (Italy) September 26-29, 2001
- X International Conference on Fracture, Honolulu (USA) December 2-6, 2001
- First FIB Congress, Osaka (Japan) October 13-19, 2002
- Bond in Concrete 2002, Budapest (Hungary) November 20-22, 2002
- ISEC 02, Rome (Italy) September 23-26, 2003
- BEFIB 04, Varenna (Italy) September 20-23, 2004
- ICF 11, Torino (Italy), March 20-25, 2005.
- IACMAG 11, Torino (Italy), June 19-24, 2005
- International Workshop on High Performance Fiber Reinforced Cementitious Composites in Structural Application, Honolulu, May 23-26, 2005
- Second FIB Congress, Napoli (Italy) June 5-8, 2006
- FRAMCOS-6, Catania (Italy) June 17-22, 2007
- HPFRCC 5, Mainz (Germany) July 10-13, 2007
- ISEC-4, Melbourne (Australia) September 26-28, 2007
- International fib Symposium on Tailor Made Concrete Structures, Amsterdam (The Netherlands) May 19-22, 2008

- International Symposium on Utilization of High-Strength and High-Performance Concrete, Tokyo (Japan), October 27-29, 2008
- SCC 2008: Challenges and Barriers to Application, Chicago (USA) November 10-12, 2008
- BMC-9, Warsaw (Poland), October 25-28, 2009
- Workshop on The new boundaries of structural concrete, Salerno (Italy) April 22-23, 2010
- III fib Congress, Washington (USA) May 29 – June 2, 2010
- HPFRCC 6, Ann Arbor, Michigan (USA) June 19-22, 2011
- Bond in Concrete 2012, Brescia (Italy) June 17-20, 2012
- BEFIB 2012, Guimaraes (Portugal), September 19-21, 2012
- Tenth International Symposium on Brittle Matrix Composites BMC-10, Warsaw, October 15-17, 2012
- VIII International Conference on Fracture Mechanics of Concrete and Concrete Structures - FraMCoS-8, Toledo, Spain, March 11-14, 2013.
- ACI Spring 2013 Convention, Minneapolis, USA, April 14-18, 2013
- First International Conference on Concrete Sustainability, ICSS13, Tokyo May 27-29, 2013.
- 3rd Workshop on The New Boundaries of Structural Concrete”, Bergamo, Italy, October 3-4, 2013.
- ACI Fall 2013 Convention, Phoenix, USA, October 20-24, 2013.
- FRC 2014 Joint ACI-fib International Workshop Fibre Reinforced Concrete: from Design to Structural Applications, Montreal, Canada, July 24-25, 2014.
- ACI Fall 2014 Convention, Washington, USA, October 26-30, 2014.
- ACI Spring 2015 Convention, Kansas City, USA, April 12-16, 2015
- International Conference on the Regeneration and Conservation of Concrete Structures - RCCS, Nagasaki (Japan), June 1-3, 2015.
- ICBBM 2015, Clermont-Ferrand (France), June 22-24, 2015.
- BMC 11, Warsaw (Poland), September 28-30, 2015.
- ACI Fall 2015, Denver (CO, USA), November 8-12, 2015.
- SBE, Zurich (Switzerland), June 13-17, 2016.
- BEFIB 2016, Vancouver (Canada), September 19-21, 2016.
- ACI Fall 2016, Philadelphia (PA, USA), October 23-27, 2016.
- ACI Spring 2017, Detroit (MI, USA), March 26-30, 2017.
- ICBBM 2017, Clermont-Ferrand (France), June 21-23, 2017.

Reviewer for International Journals:

- Computer and Structures, Elsevier editor.
- Engineering Structures, Elsevier editor.
- Engineering Fracture Mechanics, Elsevier editor.
- Journal of Materials in Civil Engineering, American Society of Civil Engineering (ASCE).
- Rock Mechanics and Rock Engineering, Springer editor.
- Materials and Structures, Springer editor
- ACI Structural Journal, American Concrete Institute (ACI) editor
- ACI Materials Journal, American Concrete Institute (ACI) editor
- Advances in Engineering Software, Elsevier editor
- Advanced Concrete Technology, Japan Concrete Institute (JCI) editor
- Sadhana - Academy Proceedings in Engineering Sciences, Springer editor
- Journal of Applied Polymer Science, John Wiley & Sons, Inc editor
- Maejo International Journal of Science and Technology, Maejo University editor
- Construction and Building Materials, Elsevier editor
- Structural Engineering and Mechanics, An international Journal, Techno Press editor
- Korean Society of Civil Engineering (KSCI) Journal of Civil Engineering, Springer editor
- Cement and Concrete Composites, Elsevier editor
- Composites Part A, Elsevier editor

- ASCE Journal of Structural Engineering
- Advances in Concrete Construction
- Composites Part B
- European Journal of Environmental and Civil Engineering
- Nanoscience and nanotechnology letters
- Theoretical and applied fracture mechanics
- Tunnelling and underground space technology
- Structural engineering and mechanics, An International Journal

Research projects:

- Bond-slip relationship of fiber reinforcement in concrete within the VII Executive Program of Cooperation in the Fields of Science and Technology between the Government of Italy and the Government of Japan for the Period from 2002 to 2006” (Italian Partner: Prof. Bernardino Chiaia; Japanese Partner: Prof. Hirozo Mihashi).
- Fibre-Reinforced Concrete for Strong, Durable and Cost-Saving Structures and Infrastructures (National Supervisor Prof. Marco di Prisco), project financed by the Italian Ministry of Education during the years 2005-2006
- R.I.C.E.-Research Innovation in Civil Engineering: Behaviour of Disordered Materials” (Local supervisor: Prof. Bernardino Chiaia) project financed by the Italian Ministry of Education during the years 2007-2008
- Construction methodologies and structural performance of tunnel lining (National supervisor: Prof. Giovanni Plizzari) project financed by the Italian Ministry of Education during the years 2007-2008
- Safety of non structural elements of school buildings (Local partner: Prof. Bernardno Chiaia), project financed by Piemonte Region during the years 2009-2011
- Innovation of Industrial products – InnovAnce (Local partner: Prof. Bernardno Chiaia), project financed by the Italian Association of Construction Companies and Italian Ministry of Economical Development for the years 2011-2013
- Research contract n. 266/2014 (2014) between Piedmont Region (IT) and Dep. of Structural, Geotechnical and Building Eng. of Politecnico di Torino in the framework of n. 187 – “RISBA” project "Risks of artificial dams" - Territorial Cooperation program cross-border Italy-France (Alps) Alcotra 2007/2013. Scientific Coordinator: Prof. Ing. B. Chiaia.
- Research contract n. 222/2014 (2014-2016) "Rockfalls: realization of risk scenarios” - between Aosta Valley Region (IT) and Dep. of Environment, Land and Infrastructure Eng. of Politecnico di Torino. Scientific Coordinator: Prof. M. De Maio.
- Research contract n. 61/2014 (2014) between Aosta Valley Region (IT) and Dep. of Structural, Geotechnical and Building Eng. of Politecnico di Torino in the framework of n. 187 – “RISBA” project "Risks of artificial dams" - Territorial Cooperation program cross-border Italy-France (Alps) Alcotra 2007/2013. Scientific Coordinator: Prof. Ing. B. Chiaia.
- THE PACIFIC EARTHQUAKE ENGINEERING RESEARCH CENTER (PEER) agreement number: 1128-NCTRKN. Research project on “How the water/binder ratio and voids affect the performances of hardened concrete subjected to fire”. In collaboration with Prof. Kamran Nemati, University of Washington (Seattle USA), 2016-2018.
- “Advanced mechanical modelling of new materials and structures for the solution XX horizon challenges”, (National supervisor: Prof. Mario di Paola), project financed by the Italian Ministry of Education during the years 2016-2019.
- “Eco-evaluation of concrete structures and infrastructures for a sustainable built environment” within the “Call for Joint Projects for the internationalization of Research” supported by Politecnico di Torino and Compagnia San Paolo Foundation. (Supervisors, Prof. Barbara Frigo – Politecnico di Torino, and Prof. Guillaume Habert, ETH Zurich) 2016 -2018.

Teaching activities:

- Undergraduate courses: Prefabbricazione Strutturale (Precast Concrete Structures) and Laboratorio di Tecnica delle Costruzioni (Structural Engineering) at Politecnico di Torino
- Graduate courses: Tecnica delle Costruzioni and Complementi di Tecnica delle Costruzioni (Structural Engineering), Progetto di Strutture in Cemento Armato (Design of Concrete Structures), and Dinamica ed Ingegneria Sismica (Dynamics and Seismic Engineering) at Politecnico di Torino

Seminars:

- 2008, Yamagata University, Yamagata, Japan, “Arches in Torino”.
- 2008, Tohoku University, Sendai, Japan, “Multiple cracking in HPFRCC tensile members”.
- 2011, Hong Kong University of Science and Technology, Hong Kong, Cina, “Uniaxial tension and compression tests to tailor hybrid SHCC and reduce the environmental impact of concrete”.
- 2012, Universidad Politécnica de Madrid - Escuela Técnica Superior de Ingenieros de Caminos, Canales y Puertos, Madrid, Spain, “Crack patterns in reinforced and fiber-reinforced concrete structures”.
- 2013, Tohoku University, Sendai, Japan, “Sustainability and mechanical performances of concrete structures”.
- 2014, Henan University of Technology, Zhengzhou, Cina, “Evaluating the eco-mechanical performances of fiber-reinforced concrete”.
- 2016, Tomsk State University of Architecture and Building, Tomsk (Russia), “A Unified Approach to design Reinforced Concrete and Fiber-Reinforced Concrete”.

Membership:

- Member of the American Concrete Institute - ACI
- Member of the Committee ACI 544 (Fiber-Reinforced Concrete)
- Member of the Committee ACI 555 (Concrete with Recycled Materials)
- Member of the group WP 1.7.1 (Tunnels in fiber reinforced concrete) within the *fédération internationale du béton* (the International Federation for Structural Concrete) –fib
- Member of the TG 3.2 “Modelling of structural performance of existing concrete structures” within the *fédération internationale du béton* (the International Federation for Structural Concrete) –fib
- Member of the committee TC-EEC (Environmental evaluation of concrete structures toward sustainable construction), within the International Union of Laboratories and Experts in Construction Materials, Systems and Structures – RILEM

Selected publications in peer-reviewed journals:

Fantilli, A.P., Sicardi, S., Dotti, F.

The use of wool as fiber-reinforcement in cement-based mortar
(2017) *Construction and Building Materials*, 139, pp. 562-569.

Fantilli, A.P., Frigo, B., Chiaia, B.

Comparing multi-scale cracking mechanisms in man-made composites and natural materials
(2017) *Composites Part B: Engineering*, 115, pp. 369-375.

Fantilli, A.P., Chiaia, B., Gorino, A.

Minimum reinforcement and ductility index of lightly reinforced concrete beams
(2016) *Computers and Concrete*, 18 (6), pp. 1175-1194.

- Fantilli, A.P., Chiaia, B., Gorino, A.
Ecological and mechanical assessment of lightweight fiber-reinforced concrete made with rubber or expanded clay aggregates
(2016) *Construction and Building Materials*, 127, pp. 692-701.
- Fantilli, A.P., Chiaia, B., Gorino, A.
Unified approach for minimum reinforcement of concrete beams
(2016) *ACI Structural Journal*, 113 (5), pp. 1107-1116.
- Fantilli, A.P., Chiaia, B., Gorino, A.
Fiber volume fraction and ductility index of concrete beams
(2016) *Cement and Concrete Composites*, 65, pp. 139-149.
- Fantilli, A.P., Cavallo, A.D., Pistone, G.
Fiber-reinforced lightweight concrete slabs for the maintenance of the Soleri Viaduct
(2015) *Engineering Structures*, 99, pp. 184-191.
- Chiaia, B., Fantilli, A.P., Guerini, A., Volpatti, G., Zampini, D.
Eco-mechanical index for structural concrete
(2014) *Construction and Building Materials*, 67 (PART C), pp. 386-392.
- Fantilli, A.P., Mihashi, H., Nishiwaki, T.
Tailoring hybrid strain-hardening cementitious composites
(2014) *ACI Materials Journal*, 111 (2), pp. 211-218.
- Fantilli, A.P., Chiaia, B.
The work of fracture in the eco-mechanical performances of structural concrete
(2013) *Journal of Advanced Concrete Technology*, 11 (10), pp. 282-290.
- Fantilli, A.P., Chiaia, B.
Golden ratio in the crack pattern of reinforced concrete structures
(2013) *Journal of Engineering Mechanics*, 139 (9), pp. 1178-1184.
- Fantilli, A.P., Chiaia, B.
Eco-mechanical performances of cement-based materials: An application to self-consolidating concrete
(2013) *Construction and Building Materials*, 40, pp. 189-196.
- Chiaia, B., Fantilli, A.P., Ventura, G.
A chemo-mechanical model of lime hydration in concrete structures
(2012) *Construction and Building Materials*, 29, pp. 308-315.
- Fantilli, A.P., Vallini, P., Chiaia, B.
Ductility of fiber-reinforced self-consolidating concrete under multi-axial compression
(2011) *Cement and Concrete Composites*, 33 (4), pp. 520-527
- Fantilli, A.P., Mihashi, H., Vallini, P., Chiaia, B.M.
Equivalent confinement in HPFRCC columns Measured by triaxial test
(2011) *ACI Materials Journal*, 108 (2), pp. 159-167.

- Fantilli, A.P., Mihashi, H., Vallini, P., Chiaia, B.
The ductile behavior of high performance concrete in compression
(2010) Archives of Civil Engineering, 56 (1), pp. 3-18.
- Fantilli, A.P., Vallini, P.
Crushing failure in hollow cylinders made of quasi-brittle materials
(2010) Computers and Structures, 88 (7-8), pp. 426-436.
- Fantilli, A.P., Mihashi, H., Vallini, P.
Multiple cracking and strain hardening in fiber-reinforced concrete under uniaxial tension
(2009) Cement and Concrete Research, 39 (12), pp. 1217-1229.
- Noguchi, T., Tomosawa, F., Nemati, K.M., Chiaia, B.M., Fantilli, A.R.
A practical equation for elastic modulus of concrete
(2009) ACI Structural Journal, 106 (5), pp. 690-696.
- Chiaia, B., Fantilli, A.P., Vallini, P.
Combining fiber-reinforced concrete with traditional reinforcement in tunnel linings
(2009) Engineering Structures, 31 (7), pp. 1600-1606.
- Chiaia, B., Fantilli, A.P., Vallini, P.
Evaluation of crack width in FRC structures and application to tunnel linings
(2009) Materials and Structures/Materiaux et Constructions, 42 (3), pp. 339-351.
- Fantilli, A.P., Mihashi, H., Vallini, P.
Effect of bond-slip on the crack bridging capacity of steel fibers in cement-based composites
(2008) Journal of Materials in Civil Engineering, 20 (9), pp. 588-598.
- Fantilli, A.P., Mihashi, H., Vallini, P.
Crack profile in RC, R/FRCC and R/HPFRCC members in tension
(2007) Materials and Structures/Materiaux et Constructions, 40 (10), pp. 1099-1114.
- Fantilli, A.P., Mihashi, H., Vallini, P.
Post-peak behavior of cement-based materials in compression
(2007) ACI Materials Journal, 104 (5), pp. 501-510.
- Chiaia, B., Fantilli, A.P., Vallini, P.
Evaluation of minimum reinforcement ratio in FRC members and application to tunnel linings
(2007) Materials and Structures/Materiaux et Constructions, 40 (6), pp. 593-604.
- Fantilli, A.P., Vallini, P.
A cohesive interface model for the pullout of inclined steel fibers in cementitious matrixes
(2007) Journal of Advanced Concrete Technology, 5 (2), pp. 247-258.
- Fantilli, A.P., Iori, I., Vallini, P.
Size effect of compressed concrete in four point bending RC beams
(2007) Engineering Fracture Mechanics, 74 (1-2), pp. 97-108.
- Fantilli, A.P., Mihashi, H., Vallini, P.
Strain compatibility between HPFRCC and steel reinforcement
(2005) Materials and Structures/Materiaux et Constructions, 38 (278), pp. 495-503.

Fantilli, A.P., Ferretti, D., Rosati, G.

Effect of bar diameter on the behavior of lightly reinforced concrete beams
(2005) *Journal of Materials in Civil Engineering*, 17 (1), pp. 10-18.

Fantilli, A.P., Vallini, P.

Strains in steel bars of reinforced concrete elements subjected to repeated loads
(2004) *Journal of Strain Analysis for Engineering Design*, 39 (5), pp. 447-457.

Fantilli, A.P., Ferretti, D., Iori, I., Vallini, P.

Mechanical model for failure of compressed concrete in reinforced concrete beams
(2002) *Journal of Structural Engineering*, 128 (5), pp. 637-645.

Fantilli, A.P., Ferretti, D., Iori, I., Vallini, P.

Behaviour of R/C elements in bending and tension: The problem of minimum reinforcement ratio

(1999) *European Structural Integrity Society*, 24 (C), pp. 99-125.

Fantilli, A.P., Ferretti, D., Lori, I., Vallini, P.

Flexural deformability of reinforced concrete beams

(1998) *Journal of Structural Engineering*, 124 (9), pp. 1041-1049.

Alessandro Pasquale Fantilli