

PERSONAL INFORMATION

Angelo Marcello Tarantino



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POSITION

Full Professor of Structural Mechanics (SSD ICAR/08), Engineering department of "Enzo Ferrari" - University of Modena and Reggio Emilia

WORK EXPERIENCE

22/11/1995–31/10/1998

Engineering lecturer

Marche Polytechnic University, Ancona (Italy)

01/11/1998–30/12/2002

Associate professor of Structural Mechanics

University of Modena and Reggio Emilia, Modena (Italy)

31/12/2002–Present

Full professor of Structural Mechanics

University of Modena and Reggio Emilia, Modena (Italy)

05/10/2015–Present

Director of the Interdepartmental Research Center and for Services in the Construction and Environment Sectors (CRICT-UNIMORE).

The laboratory obtained the accreditation as Industrial research laboratory and Innovation Center of Emilia-Romagna Region- High Technology Network (Tecnopoli Network). The Center proposes itself as an interlocutor for industrial companies and local companies that need consultancy, services and collaborations for the development of new products, technologies and processes.

During 2019 the Center won the participation in three POR-FERS projects in Emilia Romagna:

- InSPiRE, Integrated technologies for Smart buildings and PREdictive maintenance;
- TIMESAFE, Integrated and innovative technologies with limited impact and invasiveness for seismic improvement of buildings without interruption of use;
- IMPReSA, Use of recycled plastic materials for lightened structural mortars and concretes.

EDUCATION AND TRAINING

09/1979–12/11/1985

Degree in Civil Engineering, Marche Polytechnic University

03/1987–17/10/1990

Ph.D in Structural Engineering, University of Florence

PERSONAL SKILLS

Mother tongue(s)

Italian

Foreign language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	

English	B2	B2	B2	B2	B2
French	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Driving licence B

ADDITIONAL INFORMATION

Professional experience

November 22, 1995, he is assistant professor at the Faculty of Engineering, University of Ancona.
 With italian D.M. August 6, 1998, he was proclaimed the winner, with an unanimous judgment, of the national competition for associate professor, and on November 1998 he took the service at the Faculty of Engineering of the University of Modena and Reggio Emilia.
 With Rector's Decree no. 447 of 18 May 2001, he was proclaimed the winner of the competition for full professor at the Faculty of Engineering of the University of Modena and Reggio Emilia.
 Since 2004 he is referent of the degree courses in Civil Engineering and Building Engineering at the Military Academy of Modena.
 2007-present: Director of the School in Civil Engineering at the University of the San Marino Republic.
 2008-2016: President of the Degree Course in Civil Engineering at the University of Modena and Reggio Emilia.
 In August 2014 he was appointed member of the jury for the achievement of the national scientific qualification (ASN) as professor of I and II role for the competition sector 08 / B2 – Scienza delle Costruzioni.

Editorial board membership of peer-review international journals

2018-present: member of the Editorial Board of the International Journal of Mathematical Physics.
 March 2015, Lead guest editor of the Special Issue in the Journal: Modeling and Simulation in Engineering, Hindawi Publishing Corporation. Title: Structural modeling at the micro, meso and nano scales.
 May 2019, Lead guest editor of the Special Issue in the Journal: Materials MPDI. Title: Advances in Structural Mechanics Modeled with FEM.

Consulting activities

With the resolution of 09/28/2009 he was appointed member of the Technical Scientific Committee on Seismic Matters of the Emilia-Romagna Region pursuant to art. 4 of the L.R. n. 19 of 2008 "Regulations for the reduction of seismic risk".
 In April 2017, prof. Tarantino was commissioned by the Autostrade per l'Italia Spa to study the causes of the collapse of bridge no. 167, of the A14 - near Ancona south, which occurred on 9 March 2017, in which two people died.

Teaching activities

1985-1988, Prof. Tarantino has taught at the Institute of Science and Technology of Construction at the Ancona University, collaborating mainly to the course of "Scienza delle costruzioni".
 1988-present, he is teacher of 'Scienza delle Costruzioni' (9 credits) and Theory of Elasticity (9 credits) for undergraduate and master degree in Civil Engineering at the University of Modena and Reggio Emilia.
 2007-present, Prof. Tarantino holds the same teachings at the University of Repubblica of San Marino. He has conducted research and study abroad (Northwestern University, Evanston, USA 1986; Besançon, Université de Franche-Comté, France 1995; University College Dublin, Ireland in 1997 and 1999, Université Lyon, France in 1998, etc.).

Research topics

The entire research carried out by Prof. Tarantino can be subdivided into the following topics: viscoelasticity; fracture mechanics and dynamic propagation of cracks; bifurcation theory, nonlinear dynamics and chaos; piezoelectricity and magnetoelasticity; contact problems; equilibrium, bifurcation and stability in finite elasticity; fiber-reinforced concrete and earthquake engineering.
 He was reviewer of scientific papers for several international journals, including:

- Quarterly Journal of Mechanics and Applied Mathematics;
- International Journal of Solids and Structures;
- International Journal for Numerical Methods in Engineering;
- ACI Journal;
- Structural Engineering and Mechanics;
- Journal of Elasticity;
- ASCE Journal;
- International Journal of Engineering Science;
- International Journal of Non-Linear Mechanics;
- IMA Journal of Applied Mathematics;
- Engineering Fracture Mechanics;
- Mathematical Reviews;
- International Journal of Damage Mechanics;
- Advances in Mathematical Physics;
- Mathematics and Mechanics of Solids;
- Journal of Engineering Mechanics, ASCE.

He was reviewer of the research projects on behalf of the Italian Ministry of Education (Prin, FIRB, in Future Research) and the Ministry of Economic Development (Fit).

Recent publications

1. L. Lanzoni, A.M. Tarantino. *Finite anticlastic bending of hyperelastic solids and beams*. **Journal of Elasticity**, vol. 131, 2018, pp. 137-170. DOI 10.1007/s 10659-017-9649-y.
2. J. Xue, D. Lavorato, A.V. Bergam, J. Wu, Y. Huang, B. Chen, C. Nuti, A.M. Tarantino, B. Briseghella, G.C. Marano, S. Santini. New solutions for rapid repair and retrofit of RC bridge piers. **Rpee**, Série III, n. 4, 2017, pp. 105-112.
3. G.C. Marano, M. Pelliciani, T. Cuoghi, B. Briseghella, D. Lavorato, A.M. Tarantino. Degrading Bouc-Wen model parameters identification under cyclic load. **International Journal of Geotechnical Earthquake Engineering (IJGEE)**, vol. 8(2), 2017, pp. 60-81.
4. V. Savino, L. Lanzoni, A.M. Tarantino, M. Viviani. Simple and effective models to predict the compressive and tensile strength of HPFRC as the steel fiber content and type changes. **Composites Part B: Engineering**, vol. 137, 2018, pp. 153-162.
5. G. Barozzi, N. Cosentino, L. Lanzoni, A.M. Tarantino. Safety assessment of historic timber structural elements. **Case Studies in Construction Materials**, vol. 8, 2018, pp. 530-541.
6. M. Pelliciani, G. C. Marano, T. Cuoghi, B. Briseghella, D. Lavorato and A. M. Tarantino. Parameter identification of degrading and pinched hysteretic systems using a modified Bouc–Wen model. **Structure and Infrastructure Engineering**, vol. 14, 2018, doi.org/10.1080/15732479.2018.1469652
7. F.O. Falope, L. Lanzoni, A. M. Tarantino. Modified hinged beam test on steel fabric reinforced cementitious matrix (SFRCM). **Composites Part B: Engineering**, vol. 146, 2018, pp. 232-243.
8. F.O. Falope, L. Lanzoni, A. M. Tarantino. Double lap shear test steel fabric reinforced cementitious matrix (SFRCM): Experimental test and bond modelling. **Composite Structures**, vol. 201, 2018, pp. 503-513.
9. D.M. Barbieri, B. Chen, E. Mazzarolo, B. Briseghella, A. M. Tarantino. Longitudinal Joint Performance of a Concrete Hollow Core Slab Bridge. **Transportation Research Record: Journal of the Transportation Research Board**, 2018. doi.org/10.1177/0361198118781653
10. V. Savino, L. Lanzoni, A.M. Tarantino, M. Viviani. Tensile Constitutive Behaviors of FR mortars and HPFRCs. **Construction and Building Materials**, vol. 186, 2018, pp. 525-536.
11. J. Xue, D. Lavorato, A.V. Bergam, C. Nuti, B. Briseghella, G.C. Marano, T. Ji, I. Vanzi, A.M. Tarantino, S. Santini. Severely damaged reinforced concrete circular columns repaired by turned steel rebar and high-performance concrete jacketing with steel or polymer fibers. **Applied Sciences** n. 8, 2018, 1671.
12. V. Savino, L. Lanzoni, A.M. Tarantino, M. Viviani. An extended model to predict the compressive, tensile and flexural strengths of HPFRCs and UHPFRCs: Definition and experimental validation. **Composites Part B: Engineering**, vol. 163, 2019, pp. 681-689.

13. M. Pellicciari, A.M. Tarantino. Equilibrium paths for Von Mises trusses in finite elasticity. **Journal of Elasticity**, vol. X, 2019, pp. 00-00.
14. M. Baccocchi, A.M. Tarantino. Time-dependent behaviour of viscoelastic three-phase composite plates reinforced by Carbon nanotubes. **Composite Structures**, vol. 216, 2019, pp. 20-31.
15. F.O. Falope, L. Lanzoni, A. M. Tarantino. Bending device and anticlastic surface measurement of solids under large deformations and displacements. **Mechanics Research Communications**, vol. 97, 2019, pp. 52-56.
16. M. Baccocchi, A.M. Tarantino. Natural frequency Analysis of Functionally Graded Orthotropic Cross-Ply Plates Based on the Finite Element Method. **Math. Comp. Appl. MDPI**, 2019, 24, 52; doi:10.3390/mca24020052.
17. L. Lanzoni. A.M. Tarantino. *The bending of beams in finite elasticity*. **Journal of Elasticity**, 2019, in press.
18. M. Pellicciari, B. Briseghella, F. Tondolo, L. Veneziano, C. Nuti, R. Greco, D. Lavorato, A.M. Tarantino. *A degrading Bouc-Wen model for the hysteresis of reinforced concrete structural elements*. **Structure and Infrastructure Engineering**, 2019, in press.
19. M. Baccocchi, R. Luciano, C. Majorana, A.M. Tarantino. *Free vibrations of sandwich plates with damaged soft-core and non-uniform mechanical properties: Modeling and Finite Element analysis*. **Materials MDPI**, 2019, in press.
20. F.O. Falope, L. Lanzoni, A. M. Tarantino. The bending of fully nonlinear beams. Theoretical, numerical and experimental analyses. **International Journal of Engineering Science**, 2019, in press.

Recent international conferences

1. D.M. Barbieri, B. Chen, E. Mazzarolo, B. Briseghella, A. M. Tarantino. Longitudinal Joint Performance of a Concrete Hollow Core Slab Bridge. Transportation Research Board 97th Annual Meeting Transportation Research Board. 2018. N. 18-00258.
2. F.O. Falope, L. Lanzoni, A. M. Tarantino. Coactive stresses in MEMS and NEMS based on periodically bent crystals. First International Conference on Mechanics of Advanced Materials and Structures – ICMAMS, Torino, 17-20 June, 2018.
3. M. Baccocchi, A. M. Tarantino. Transient response of three-phase composite plates made of viscoelastic matrix reinforced by carbon nanotubes and oriented straight fibers. 5th International Conference on Mechanics of Composites. MECHCOMP 2019, Lisbon, 1-4 July 2019.

Recent books

A. M. Tarantino, L. Lanzoni, F.O. Falope. *The bending theory of fully nonlinear beams*. Springer, 2019, pp. 87.

Patents

Inventor of the patent no. BO2500U000074 filed on 28/11/2005, relating to polypropylene fibers for fiber-reinforced structural concrete. Next international patent no. 06124764.9-2303.
 Inventor of patent n. ITBO2120496 / 7/8 (three versions) filed on 03/21/2014 entitled "Cement-mixed layer for road paving".

Research Projects and Conventions

- Research projects funded by Miur ex 60%.
- Workshop Emilia - Laborator Rubes on networks of expertise in mechanics - funded by POR 2000-2006, ESF Ob. 3 of the Emilia-Romagna Region.
- Cofin 2004 Mathematical models for the dynamics of DNA.
- Research Project 2005. Project of industrial fibers for concrete, Industrial Partner Wires & Shapes.
- Research Contract July 2006. Polymeric fibers innovative for the construction of fiber-reinforced concrete. Wires & Shapes.
- Research contract in September 2007. Covering modular columns of stone. Kerbell.
- Contract Research November 2007. Mortars and grouts and microstructured fiber reinforced for structural and earthquake-resistant. Three-year research program. Saint Gobain Weber.
- Contract Research December 2007 (RSM). Technology solutions for applications of fiber-reinforced concrete. Wires & Shapes.
- Research contract in February 2008. Automatic analysis of the interaction between grout and structures. Aztec Informatica.
- PRRIITT Measure 3.1 Action A Industrial research projects and pre-competitive development

specified in the notice of 7:07:08 DGR n.1043 / 2008. Project No. 193, determines executive n.5064 of June 9, 2009. Project: Mixtures cold semifredde for fiber-reinforced asphalt, Cesare Turchi Ltd.

- PRRITT Measure 3.1 Action A Industrial research projects and pre-competitive development specified in the notice of 7:07:08 DGR n.1043 / 2008. Project: Polymer fibers intended for reinforcing gallery, Wires & Forms Ltd.
- Research contract in February 2010. Research and tests on a pavement in fiber-reinforced concrete for tunnels of the Quadrilateral Umbria-Marche. Grandi Lavori Fincosit.
- Research contract in May 2010. In the field of seismic risk reduction in the Modena area. City of Modena.
- Research contract in July 2010. Seismic nursing home 'Villa Green' of Reggio Emilia.
- Research contract in September 2011. In the field of seismic risk reduction in the Modena - continuation. City of Modena.
- Contract Research October 2012. Mechanical characterization of an aggregate composed of quartz sands and epoxy resins. Biodesign LTD.
- Research contract in September 2012. In the field of seismic risk reduction in the Modena - continuation. City of Modena.
- Research contract in February 2012. Evaluation of the seismic vulnerability of the building located in Street Fonteraso 15 - Modena, STB tributaries Po river. Region ER.
- Research contract in September 2013. In the field of seismic risk reduction in the Modena - continuation. City of Modena.
- Contract Research October 2013. Evaluation of the seismic vulnerability of the building in Street Santo Stefano 25 - Reggio Emilia, STB tributaries Po river. Region ER.
- Research contract in December 2014. Assessment of seismic vulnerability of the building in Street Santa Franca 38 - Piacenza, STB tributaries Po river. Region ER.
- Interchimica Srl-Suisio Convention (Bergamo) 2015. Characterization of a conglomerate with light binder for the road paving wear layer.
- COFIN-PRIN 2015 on "Advanced mechanical modeling of new materials and structures for the solution of 2020 Horizon challenges", Italian Ministry for Univ. and Technol. and Scient. Research (MIUR).
- Research contract December 2016. Mortars and concretes with additive OTF derivative. A.A.S.S. Republic of San Marino, Environmental Researches r.s.l.
- Research Contract July 2017. Characterization and re-use of the clayey raw materials resulting from the quarrying of the rocks from which the aggregates are obtained. Cabe S.r.l.
- Research Contract July 2017. Characterization and re-use of washing sludge deriving from the production of aggregates. Cabe S.r.l.
- Research Contract September 2017. Mechanical characterization of reinforced masonry panels. Kerakoll S.p.a.
- Autostrade per l'Italia Spa 2018 agreement. Mechanical characterization of multilayer neoprene reinforced bearings.