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PERSONAL INFORMATION

Cesare Signorini, PhD.

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Date of birth 14 January 1988 | Nationality Italian

WORK EXPERIENCE

October 2021 – present — Postdoctoral Research Fellow / Junior Group Leader

Institute of Construction Materials, Faculty of Civil Engineering, TU Dresden
Georg-Schumann-Str. 7, 01187 Dresden, Germany

Postdoctoral researcher in the DFG GRK 2250 Project
"Mineral-bonded composites for enhanced structural impact safety".
Supervisor: Univ.-Prof. Dr.-Ing. Viktor Mechtcherine

November 2020 – September 2021 — Postdoctoral Research Fellow

Research Centre "CRICT", University of Modena and Reggio Emilia
Via Vivarelli 10, 41125 Modena (MO), Italy

Researcher in the field of innovative composite materials in Civil Engineering
"Progetto IMPReSA" - strategic industrial research projects (POR-FESR 2014/2020).
Supervisor: Prof. Andrea Nobili

November 2019 – October 2020 — Postdoctoral Research Fellow

Research Centre "En&Tech", University of Modena and Reggio Emilia
P.le Europa 1, 42124 Reggio Emilia (RE), Italy

Researcher in the field of innovative composite materials in Civil Engineering
"Progetto IMPReSA" - strategic industrial research projects (POR-FESR 2014/2020).
Supervisor: Prof. Enrico Radi

October 2017 – September 2019 — Adjunct Lecturer

Department of Economics, Science and Engineering, University of San Marino
Via Consiglio dei Sessanta, 99, 47891 Dogana, Republic of San Marino

Lecturer for the "Structural Engineering" course (Master degree in Civil and Environmental Engineering, 9 CFU) for the A.Y. 2017/2018 and 2018/2019

Academic supervisor *for the M.Sc. thesis: "Mechanical characterization of concrete beams reinforced with plastic fibres (PP-FRC) with functionalised interphase", discussed by Eng. Fabio Menghini (Dec. 2019)*

September 2016 – December 2019 — Lecturer/Tutor

Fondazione Collegio San Carlo
Via San Carlo 5, 41121 Modena (MO), Italy

January 2016 – October 2016 — Postgraduate Research Fellow

Research Centre "En&Tech", University of Modena and Reggio Emilia
P.le Europa 1, 42124 Reggio Emilia (RE), Italy

Researcher in the field of innovative composite materials in Civil Engineering.
Supervisor: Prof. Enrico Radi

March 2015 – January 2016

Postgraduate Industrial Researcher

Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia
Via Vivarelli 10, 41125 Modena (MO), Italy

Innovative composite materials in Civil Engineering, in collaboration with the company "Ardea Progetti e Sistemi Srl. – Milan". **Supervisor:** Prof. Cristina Siligardi

May 2014 – January 2016

Technical Consultant and R&D staff member

Ardea Progetti e Sistemi s.r.l. (now included in Fibre Net SpA holding - Udine)
Via G. Boccaccio 14, 20123 Milano (MI), Italy
Operating Office: Via E. Cristoni 58, 40033 Casalecchio di Reno (BO), Italy

EDUCATION AND TRAINING

2016–2020

PhD - Thesis Title: "Advanced inorganic composite materials for structural purposes: Enhancement of the interphase adhesion" ICAR /08

Department of Science and Methods for Engineering (DISMI), University of Modena and Reggio Emilia
Via G. Amendola 2, 42122 Reggio Emilia (RE), Italy

Dissertation: 5 March 2020

2012–2014

Master of Science (M.Sc.) in Civil Engineering MIUR LM-23 DM 270/04

Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia
Via P. Vivarelli 10, 41125 Modena (MO), Italy

2007–2012

Bachelor of Science (B.Sc.) in Civil Engineering MIUR L-8 DM 509/99

Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia
Via P. Vivarelli 10, 41125 Modena (MO), Italy

PERSONAL SKILLS

Mother tongue: Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Qualification: C1, *University Language Centre, University of Modena and Reggio Emilia*, 2016

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

Organisational / managerial skills

- Proven experience in planning and leading experimental and laboratory activities.
- I supervised the work of more than 15 undergraduate students as thesis advisor or co-advisor
- Member of the Organising Committee for the International Workshop Engineered Materials for Sustainable Structures - EM4SS'21 (26th - 28th April 2021, Modena, Italy)
- Chairperson for the "Advanced Composite Materials for structural purposes" session within EM4SS'21 international workshop (April 2021, University of Modena and Reggio Emilia, Italy, online)
- Chairperson for a session of the Euromech Colloquium 626 "Mechanics of high-contrast elastic composites" (September 2021, Keele University, UK, online)

Editorial activity

- Topic Editor (Guest-editor) for the Journal "**Crystals**" (MDPI, IF 2.589)
  Special issue: New Frontiers in Cementitious and Lime-Based Materials and Composites.
- Editor for the special collection "Engineered Materials for Sustainable Structures" for the journal "**Key Engineering Materials**" (Trans Tech Publications).

Memberships

- **RILEM Young Member** (since Dec.2020). Member of the TCs:
  - CNC: *Carbon-based nanomaterials for multifunctional cementitious matrices*
  - 290-IMC: *Durability of Inorganic Matrix Composites used for Strengthening of Masonry Constructions*
- **Member of the European Mechanics Society** (EuroMech) since 2021

Peer-reviewer activity

Reviewer for several international Scopus indexed journals
Link to Publons

- **Elsevier Ltd.:** Cement and Concrete Composites, Journal of Building Engineering, Construction and Building Materials, Composite Science and Technology, Ain Shams Engineering Journal, Applications in Engineering Science;
- **MDPI:** Coatings, Applied Sciences, Materials, Crystals, Chemosensors, Buildings, Sustainability;
- **Techno-Press:** Advances in Nano Research, An International Journal;
- **Trans Tech Publications:** Key Engineering Materials;
- IFAC Symposium on Information Control Problems in Manufacturing, 2018.

Prizes and recognitions

Poster Session Award at Zwick Academia Day 2018

PUBLICATIONS

[1] Andrea Nobili, Bariş Erbaş, and **Cesare Signorini**. "Veering of Rayleigh–Lamb waves in orthorhombic materials". In: *Mathematics and Mechanics of Solids* (2022), p. 10812865211073467.

[2] Andrea Nobili, **Cesare Signorini**, and Volpini Valentina. "Experimental and theoretical investigation of the mechanical properties of PHBH biopolymer parts produced by fused deposition modeling". In: *Macromolecular Symposia* (2022), to appear, doi.org/10.1002/masy.202100283.

[3] **Cesare Signorini**. "Assessment of the behaviour of low-modulus polyurethane foams subjected to severe shear deformation conditions". In: *Advanced Problems in Mechanics*. Lecture Notes in Mechanical Engineering, 2022, pp. 1–11.

[4] **Cesare Signorini**, Antonella Sola, Beatrice Malchiodi, and Andrea Nobili. "Highly dissipative fiber-reinforced concrete for structural screeds". In: *Journal of Materials in Civil Engineering* 34.4 (2022), p. 04022022.

[5] Andrea Nobili, Valentina Volpini, and **Cesare Signorini**. "Antiplane Stoneley waves propagating at the interface between two couple stress elastic materials". In: *Acta Mechanica* (2021), pp. 1–19.

[6] **Cesare Signorini**. "Durable and Highly Dissipative Fibrous Composites for Strengthening Coastal Military Constructions". In: *Advanced Materials and Technologies for Defense II*. Vol. 893. Key Engineering Materials. Trans Tech Publications Ltd, Aug. 2021, pp. 75–83.

[7] **Cesare Signorini** and Andrea Nobili. "Comparing durability of steel reinforced grout (SRG) and textile reinforced mortar (TRM) for structural retrofitting". In: *Materials and Structures* 54.3 (2021), pp. 1–15.

[8] **Cesare Signorini** and Andrea Nobili. "Durability of fibre-reinforced cementitious composites (FRCC) including recycled synthetic fibres and rubber aggregates". In: *Applications in Engineering Sciences* (2021), p. 100077.

[9] **Cesare Signorini** and Andrea Nobili. "Epoxy Resins for Interphase Strengthening of Textile-Reinforced Composites for Structural Applications". In: *Mineral-Filled Polymer Composites Handbook*. Vol. 2. CRC Press LLC., Taylor and Francis Group, 2021, pp. 45–66.

[10] **Cesare Signorini** and Andrea Nobili. "Targeting functionalised carbon nanotubes at the interphase of Textile Reinforced Mortar (TRM) composites". In: *Composites Part A: Applied Science and Manufacturing* (2021), p. 106330.

[11] **Cesare Signorini** and Valentina Volpini. "Mechanical Performance of Fiber Reinforced Cement Composites Including Fully-Recycled Plastic Fibers". In: *Fibers* 9.3 (2021), p. 16.

[12] Andrea Nobili, Enrico Radi, and **Cesare Signorini**. "A new Rayleigh-like wave in guided propagation of antiplane waves in couple stress materials". In: *Proceedings of the Royal Society A* 476.2235 (2020), p. 20190822.

[13] **Cesare Signorini**, Andrea Nobili, Antonella Sola, and Massimo Messori. "Designing epoxy viscosity for optimal mechanical performance of coated Glass Textile Reinforced Mortar (GTRM) composites". In: *Construction and Building Materials* 233 (2020), p. 117325.

[14] **Cesare Signorini**, Antonella Sola, Beatrice Malchiodi, Andrea Nobili, and Andrea Gatto. "Failure mechanism of silica coated polypropylene fibres for Fibre Reinforced Concrete (FRC)". In: *Construction and Building Materials* 236 (2020), p. 117549.

[15] Massimo Messori, Andrea Nobili, **Cesare Signorini**, and Antonella Sola. "Effect of high temperature exposure on epoxy-coated glass textile reinforced mortar (GTRM) composites". In: *Construction and Building Materials* 212 (2019), pp. 765–774.

[16] **Cesare Signorini**, Andrea Nobili, and Cristina Siligardi. "Sustainable mineral coating of alkali-resistant glass fibres in textile-reinforced mortar composites for structural purposes". In: *Journal of Composite Materials* 53.28-30 (2019), pp. 4203–4213.

[17] **Cesare Signorini**, Andrea Nobili, Antonella Sola, and Massimo Messori. "Optimal Epoxy Dilution for Epoxy-Coated Textile Reinforced Mortar (TRM): An Experimental Perspective". In: *Conference of the Italian Association of Theoretical and Applied Mechanics*. Springer. 2019, pp. 499–511.

[18] **Cesare Signorini**, Antonella Sola, Andrea Nobili, and Cristina Siligardi. "Lime-cement textile reinforced mortar (TRM) with modified interphase". In: *Journal of applied biomaterials & functional materials* 17.1 (2019), p. 2280800019827823.

[19] Massimo Messori, Andrea Nobili, **Cesare Signorini**, and Antonella Sola. "Mechanical performance of epoxy coated AR-glass fabric textile reinforced mortar: influence of coating thickness and formulation". In: *Composites Part B: Engineering* 149 (2018), pp. 135–143.

[20] **Cesare Signorini**, Andrea Nobili, Erika Iveth Cedillo Gonzalez, and Cristina Siligardi. "Silica coating for interphase bond enhancement of carbon and AR-glass textile reinforced mortar (TRM)". In: *Composites Part B: Engineering* 141 (2018), pp. 191–202.

[21] **Cesare Signorini**, Andrea Nobili, and Federico O Falope. "Mechanical performance and crack pattern analysis of aged Carbon Fabric Cementitious Matrix (CFRCM) composites". In: *Composite Structures* 202 (2018), pp. 1114–1120.

[22] Andrea Nobili and **Cesare Signorini**. "On the effect of curing time and environmental exposure on impregnated Carbon Fabric Reinforced Cementitious Matrix (CFRCM) composite with design considerations". In: *Composites Part B: Engineering* 112 (2017), pp. 300–313.

[23] **Cesare Signorini**, Cristina Siligardi, Andrea Nobili, and Angelo Marcello Tarantino. "Mechanical optimization of hybrid matrices in FRP/FRCM composite materials for application in structural restoration of historical buildings". In: *National Young Researchers' Forum on Materials Science and Technology*. Journal of Applied Biomaterials and Functional Materials. 2016, e335.

Grants and Projects

1. Ministry of Education, University and Research (MIUR) – National Group of Mathematical Physics (GNFM-INdAM) – Young researchers Grant 2020
   Title: Electro-mechanical response of Dielectric Laminated Composites (DLC): experimental and analytical investigation
   · Role: **Principal Investigator**
2. Ministry of Education, University and Research (MIUR) – PRIN 2017: Research Projects of Relevant National Interest
   Title: Modelling of constitutive laws for traditional and innovative building materials
   PI: Prof. Andrea Carpinteri, University of Parma, Italy
   · Role: **Appointed member of the research unit of the University of Modena**
3. Ministry of Education, University and Research (MIUR) – National Group of Mathematical Physics (GNFM-INdAM) – Young researchers Grant 2017
   Title: Asymptotic models for surface waves propagation under moving loads in near-resonance regime in elastic anisotropic continua
   · Role: **Participant**
4. Ministry of Education, University and Research (MIUR) – PhD scholarship (XXXII cycle)

Invited talks

1. Nobili A., **Signorini C.**, *Coatings of composite materials for structural rehabilitation* (2021), GRK Training Group, Technical University of Dresden (Germany)
2. **Signorini C.**, *The role played by finely tuned epoxy coatings in the optimisation of the mechanical performance of textile-reinforced mortar (TRM) composites* (2020), Concrete and Earthquake Engineering Research Group, University of Sheffield (UK)
3. **Signorini C.**, *Experimental Investigation on interphase bond enhancement of carbon and AR-glass TRM through surface coatings*, (2018) research visit and seminar - Department of Civil and Structural Engineering, University of Sheffield (UK)
4. **Signorini C.**, *Earthquake Engineering and strengthening of structures with composite materials*, (2017) research visit and seminar - Department of Civil and Structural Engineering, University of Sheffield (UK)
5. **Signorini C.**, *Experimental assessment of the mechanical properties of low-modulus polyurethane foams through simple-shear and shear-per-traction tests* (2017), School of Computing and Mathematics, University of Keele (UK)

International conferences and workshops

(Speaker underlined)

1. **Signorini C.**, Nobili A., and Volpini V. Experimental and theoretical investigation of the mechanical properties of PHBH biopolymer for additive manufacturing, 10th International Conference "Times of Polymers and Composites", 2021, September 2021, Ischia (Italy).
2. **Signorini C.**, Volpini V. and Nobili A., Long-term performance of natural fabrics in lime-based thin composite systems, 13th International Symposium on Ferrocement and thin fiber reinforced inorganic matrices, 2021, June 2021, Lyon (France), online.
3. Sola A. and **Signorini C.**, Progress of fibre coatings in fabric-reinforced lime-based composites: materials selection and property optimisation, Engineered Materials for Sustainable Structures (EM4SS'21), 26-28 April 2021, University of Modena and Reggio Emilia, online.
4. Sorzia A, **Signorini C.**, Di Maida P. and Radi E, Functionalisation techniques for polypropylene fibres in Fibre Reinforced Concrete (FRC): experimental and analytical study of the pull-out mechanisms, Engineered Materials for Sustainable Structures (EM4SS'21), 26-28 April 2021, University of Modena and Reggio Emilia, online.
5. Centorrino M, Cappucci GM, Volpini V, **Signorini C**, Nobili A, Rosa R, Ferrari AM, LCA of fiber-reinforced concrete industrial flooring with recycled plastics, Engineered Materials for Sustainable Structures (EM4SS'21), 26-28 April 2021, University of Modena and Reggio Emilia, online.
6. Macchioni GM, **Signorini C.**, Volpini V, Nobili A. and Radi E, Reuse of low-grade plastic packaging as fibrous reinforcement in cementitious materials, (2020) III Triple Helix Summit, 23-25 November 2020, Bologna (Italy), online.
7. **Signorini C.** and Nobili A, Advances in the design of surface coatings in textile-reinforced mortar (TRM) with enhanced adhesion (2020), 74th RILEM Week, The University of Sheffield, online.
8. **Signorini C.** and Nobili A. *Durable and highly dissipative fibrous composites for strengthening coastal military constructions*, (2020) AuxDefense 2020, 6-8 July 2020, online.
9. **Signorini C.** *Assessment of the behaviour of low-modulus polyurethane foams subjected to severe shear deformation conditions*, (2020) Advanced Problems in Mechanics 2020 (Mini-symposium: Extreme loading on structures), 21-26 June 2020, online.
10. **Signorini C.**, Nobili A, Radi E, Lanzoni L. *Shear horizontal Rayleigh-Lamb waves in couple stress elastic materials*, (2019) 12th HSTAM International Congress on Mechanics, 23rd - 25th September, KEDEA, Thessaloniki (GR)
11. **Signorini C.**, Nobili A, Sola A, Messori M. *Optimal epoxy dilution for epoxy-coated Textile Reinforced Mortar (TRM): an experimental perspective*, (2019) XXIV AIMETA, 15th-19th September, Università di Roma "La Sapienza", Roma (I)
12. **Signorini C.**, Nobili A, Sola A, Messori M. *Influence of epoxy dilution on the mechanical performance of epoxy-coated Glass Textile Reinforced Mortar (GTRM) composites: an optimal approach*, (2019) 5th International Conference of Mechanics of Composites, 1st-4rd July, Instituto Superior Técnico, Lisbon (PT)
13. **Signorini C.**, Nobili A. *Effect of aggressive environment exposure on mechanical performance of Steel-FRCM and Textile Reinforced Concrete (TRC)*, (2018) 21st International Conference on Composite Structures, Università di Bologna (Esculapio – ISBN 8893850796/9788893850797)
14. **Signorini C.**, Nobili A, Siligardi C, *Sustainable non-polymeric coating for AR-fibreglass lime-based TRM composite materials*, (2018) Zwick Academia Day (poster session), Rome
15. **Signorini C.**, Barbi S, Nobili A, Siligardi C, *Mechanical performance of glazed lithium aluminum disilicate (LAS) glass-ceramics* (2017) Int. Conference "Cermodel", University of Trento
16. **Signorini C.**, Nobili A. and Falope FO *Effect of accelerated aging of impregnated Carbon Fabric Cementitious Matrix (CFRCM) composites under uni-axial tensile tests*, (2017) 3rd International Conference of Mechanics of Composites (Esculapio – ISBN 889385029X/9788893850292)