

Massimiliano Cremonesi

Full Name: Massimiliano Cremonesi
Nationality: Italiana
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Address: Department of Civil and Environmental Engineering, Politecnico di Milano, piazza Leonardo da Vinci 32, 20133, Milano (Italy)
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Current position:

from 1st November 2016 Assistant professor of Solid and Structural Mechanics (RTD-B)

Work experiences:

1st October 2014 -31st October 2016 Untenured assistant professor of Solid and Structural Mechanics (RTD-A) at Department of of Civil and Environmental Engineering, Politecnico di Milano, Italy

15th February 2012 -15th February 2014 PostDoc at Department of of Civil and Environmental Engineering, Politecnico di Milano, Italy

1st February 2011 - 31st January 2012 PostDoc at Laboratoire de Mécanique et Technologie (LMT), École Normale Supérieure de Cachan, France

1st February 2010 - 31st January 2011 PostDoc at Department of Structural Engineering, Politecnico di Milano, Italy

Education:

Ph.D. in Structural, Earthquake and Geotechnical Engineering

Date: March 1st, 2010
Marks: Ph.D. cum laude
University: Politecnico di Milano (Italy)

Master Degree in Mathematical Engineering

Date: December 22nd, 2006
Marks: 110/110 cum laude

Bachelor Degree in Mathematical Engineering

Date: October 5th, 2004
Marks: 107/110
University: Politecnico di Milano (Italy)

High school degree

Date: July 3rd, 2001
School: Liceo Scientifico Grazio Cossali, Orzinuovi (BS)

Research stages:

Date: October-November 2007 and March 2009
 Institution: Universidad Politecnica de Catalunya, Barcelona, Spain
 Department: CIMNE – International center for numerical methods in Engineering
 Scientific advisor: prof. Sergio Idelsohn

Personal skills and competence:

Mother tongue: Italian

Other languages: (self evaluation according to *Common European Framework of Reference for Languages*):

	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
French	B2	B2	B2	B2	B1

Technical and scientific skills:

Operative system: Linux, Windows
 Programming language: Fortran, C, C++
 Technical software: Latex, Matlab, Abaqus

Awards and acknowledgements:

French national abilitation to the position of “Maître de conférences”, sector 60, Mécanique, génie mécanique, génie civil, 2012

Italian “Qualification” to Associate Professor Position, Italy (S.C. 08/B2 - Scienza delle Costruzioni)

Awarded by NVIDIA Corporation with a computing graphics processing unit (GPU Tesla K20) for the development of scientific research

Finalist of the 1st ECCOMAS PhD Olympiads (European competition for the best PhD thesis on Computational Mechanics)

Organization and invitation of Conferences

Chairman and Organizer of “ECCOMAS Young Investigator Conference 2017” organized by ECCOMAS (European Community on Computational Methods in Applied Sciences), Milano, 13-15 September, 2017

Organizer of the symposium “Numerical Simulation of Landslides and Debris Flows” at World Congress in Computational Mechanics, New York City, 22-27 July, 2018

Organizer of the symposium “Particle-Based Methods for the Simulation of Natural Hazards” at Particles 2019, 28-30 October, 2019

Selected as “invited plenary speaker” for the conference “Scientific Computing in Electrical Engineering”, October 2016

Selected as “Keynote” Lecturer at “ECCOMAS Coupled Conference 2017, Rhodes, 12-14 June, 2017

Member of the Scientific Committee of “ECCOMAS Young Investigator Conference 2019”, Krakov, 1-6 September, 2019

Participation in research projects:

2012-2013 member of the research unit of the European project GO4TIME (project funded by the European Commission within the Seventh Framework Programme FP7) local coordinator: A. Frangi

2011 member of the research unit of PRIN 2009 “Simulation of the dynamic response of structural systems under environmental actions” (project funded by Italian Ministry of education) local coordinator: F. Perotti

Research funding:

ENI s.p.a., *Implementation of Vermeer-Neher elasto-visco-plastic constitutive law in a Abaqus user subroutine*, 2017, scientific coordinators: A. Ghisi, M. Cremonesi, U. Perego (15K euros)

Pfisterer S.r.l *Numerical simulation of current interrupter*, 2016, scientific coordinator: M. Cremonesi 1.5 K€

ABB Switzerland Ltd, Corporate research: *Lagrangian Approaches for the Modelling of Vacuum Arcs in 3D*, 2015, scientific coordinators: A. Frangi, M. Cremonesi (50K euros)

ABB Switzerland Ltd, Corporate research: *Lagrangian Approaches for the Modelling of Vacuum Arcs in 3D*, 2016, scientific coordinators: A. Frangi, M. Cremonesi (25K euros)

Teaching activities:

- From 2017-2018 to 2018-2019: Teacher of the course “Mechanics of materials and structures “ for *Building Engineering*, 9 ECTS
- From 2016-2017 to 2018-2019: Teacher of the course “Mechanics of materials and structures “ for *Architecture*, 8 ECTS
- 2015-2016: Teacher of the course “Mechanics of solid “ for *Architecture*, 4 ECTS
- 2015-2016: Teacher of the course “Mechanics of materials and structures“ for *Architecture*, 6 ECTS
- 2014-2015: Teacher of the course “Statics and principles of structural behaviour” for *Architecture*, 4 ECTS

Teacher assistant:

- Computational Mechanics and Inelastic Structural Analysis *Master degree in Civil Engineering*, 2007-2011
- Computational Mechanics 2, *Master degree in Civil Engineering*, 2007-2010
- Solid and Structural Mechanics, *Bachelor degree in Mechanical Engineering*, 2008-2009

- Structural Mechanics, *Bachelor degree in Mathematical Engineering*, 2009-2014
- Fracture Mechanics, *Master degree in Civil Engineering*, 2011-2014

Thesis supervisor:

Supervisor of 15 Master Theses in Civil Engineering and in Mathematical Engineering.

Supervisor of 2 Ph.D. Theses in Structural, Earthquake and Geotechnical Engineering:

- F. Ferri A Lagrangian Finite element approach for the numerical simulation of landslide-reservoir interaction, 2016, Politecnico di Milano (co-supervisor: U. Perego)
- S. Meduri, A fully explicit Lagrangian Finite Element Method for highly nonlinear Fluid-Structure Interaction problems, 2019, Politecnico di Milano (co-supervisor: U. Perego)

Additional information:

Reviewer for *Natural Hazard, Ocean Engineering, Finite Elements in Analysis and Design, Engineering and Computational Mechanics, Advances in Water Resources, Nuclear Engineering and Design, Meccanica, Computer Methods in Applied Mechanics and Engineering, Computational Particle Mechanics, European Journal of Mechanics - A/Solids, Concurrency and computation, Applied Science, International Journal of Solids and Structures and Computers & Structures*

Citations: - Scopus: number of citations: 356, $h_{index}= 10$
 - Scholar: number of citations: 511, $h_{index}= 11$

Papers on international journal:

1. Meduri S., **Cremonesi M.**, Perego U., An efficient runtime mesh smoothing technique for 3D explicit Lagrangian free surface fluid flow simulations, *International Journal for Numerical Methods in Engineering*, 2019, vol. 117(4), pp. 430-452, DOI:10.1002/nme.5962
2. Franci A., **Cremonesi M.**, 3D regularized $\mu(I)$ -rheology for granular flows simulation, *Journal of Computational Physics*, 2019, vol. 378, pp. 257-277, DOI: 10.1016/j.jcp.2018.11.011
3. Meduri S., **Cremonesi M.**, Perego U., Bettinotti O., Kurkchubasche A., Oancea V., A partitioned fully explicit Lagrangian Finite Element Method for highly nonlinear Fluid-Structure-Interaction problems, *International Journal for Numerical Methods in Engineering*, 2018, vol 113(1), pp. 43-64, DOI:10.1002/nme.5602
4. Cremonesi M., **Meduri S.**, Perego U., Frangi A., An explicit Lagrangian finite element method for free-surface weakly compressible flows, *Computational Particles Mechanics*, 2017, vol. 4(3), pp.357-369, DOI:10.1007/s40571-016-0122-7
5. Franci A., **Cremonesi M.**, On the effect of standard PFEM remeshing on volume conservation in free-surface fluid flow problems, *Computational Particles Mechanics*, 2017, vol. 4 (3), pp. 331-343, DOI: 10.1007/s40571-016-0124-5
6. Ferrara L., **Cremonesi M.**, Faifer M., Toscani S., Sorelli L., Baril M-A., Réthoré J., Baby F., Toutlemonde F., Bernardi S., Structural elements made with highly flowable UHPFRC: Correlating computational fluid dynamics (CFD) predictions and non-destructive survey of fiber dispersion with failure modes, *Engineering Structures*, 2017, vol 133, pp. 151-171, DOI:10.1016/j.engstruct.2016.12.026
7. **Cremonesi M.**, Ferri F., Perego U., A basal slip model for Lagrangian finite element simulations of 3D landslides, *International Journal for Numerical and Analytical Methods in Geomechanics*, 2017, vol 41, pp 30-43, DOI:10.1002/nag.2544

8. **Cremonesi M.**, Frangi A.(2016) Lagrangian Finite Element Method for 3D compressible flow applications, *Computer Methods in Applied Mechanics and Engineering*, 2016, vol 311, pp 374-392
9. Frangi, F. **Cremonesi, M.**, Semi-analytical and numerical estimates of anchor losses in bistable MEMS, *International Journal of Solids and Structures*, vol 92-93, pp.141-148, 2016
10. Roussel, N., Gram, A., **Cremonesi, M.**, Ferrara, L., Krenzer, K., Mechtcherine, V., Shyshko, S., Skocec, J. Spangenberg, J., Svec, O., Thrane L.N., Vasilic, K, Numerical simulations of concrete flow: A benchmark comparison, *Cement and Concrete Research*, vol 79, pp. 265-271, 2016, DOI: 10.1016/j.cemconres.2015.09.022
11. Bartezzaghi, A., **Cremonesi, M.**, Parolini, N., Perego, U., An explicit dynamics GPU structural solver for thin shell elements, *Computers & Structures*, vol 154, pp. 29-40, 2015, DOI: 10.1016/j.compstruc.2015.03.005
12. Segovia-Fernandez, J., **Cremonesi, M.**, Cassella, C., Frangi, A., Piazza, G. Anchor losses in AlN contour mode resonators, *Journal of Microelectromechanical Systems*, vol 24 (2), pp .265-275, 2015, DOI: 10.1109/JMEMS.2014
13. **Cremonesi M.**, Néron D., Guidault P.A., Ladevèze P., A PGD-based homogenization technique for nonlinear multiscale problems, *Computer Methods in Applied Mechanics and Engineering*, vol. 267(1), pp. 275-292, 2013, doi:10.1016/j.cma.2013.08.009
14. Frangi A., **Cremonesi M.**, Jaakkola A., Pensala T., Analysis of anchor and interface losses in piezoelectric MEMS resonators, *Sensors and Actuators A*, vol. 190, pp. 127-135, 2013, DOI:10.1016/j.sna.2012.10.022
15. Ferrara L., **Cremonesi M.**, Tregger N., Frangi A., Shah S., On the identification of the rheological properties of cement suspensions: rheometry, Computational Fluid Dynamics Modeling and field test measurements, *Cement and Concrete Research*, vol. 42 (8), pp. 1134-1146, 2012, DOI:10.1016/j.cemconres.2012.05.007
16. **Cremonesi M.**, Frangi A., Perego U., A Lagrangian Finite Element approach for the simulation of water-waves induced by landslides, *Computers & Structures*, vol.89 (11-12), pp. 1086-1093, 2011, DOI:10.1016/j.compstruc.2010.12.005
17. **Cremonesi M.**, Ferrara L., Frangi A., Perego U., Simulation of the flow of fresh cement suspensions by a Lagrangian Finite Element approach, *Journal of Non-Newtonian Fluid Mechanics*, vol. 165, pp. 1555-1563, 2010, DOI:10.1016/j.jnnfm.2010.08.003
18. **Cremonesi M.**, Frangi A., Perego U., A Lagrangian finite element approach for the analysis of fluid-structure interaction problems, *International Journal for Numerical Methods in Engineering*, vol 84, pp. 610–630, 2010, DOI:10.1002/nme.2911

Milano, January 14, 2019

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