

PERSONAL INFORMATION

Francesco Cecinato

WORK EXPERIENCE

Nov 2018 to date

Associate Professor

University of Milan, Department of Earth Sciences “Ardito Desio”, Milan, Italy

- Permanent academic position within the Engineering Geology/Geomechanics Research Group
- Current research topics include:
 - Numerical modelling of shallow geothermal energy applications
 - Numerical modelling of pipeline motion in liquefied sand
 - Chemo-mechanical modelling of artificially and naturally bonded geomaterials
 - Numerical modelling of slope stability problems
- Current teaching responsibilities:
 - Geotechnical Engineering (Master level)
 - Rock Mechanics and Slope Stability (Master level)

Business or sector Research & Education

Jul-Oct 2018

Assistant Professor

Heriot-Watt University, School of Energy, Geosciences, Infrastructure and Society, Edinburgh, UK

- Research, teaching and administration duties within the Institute for Infrastructure & Environment

Business or sector Research & Education

Dec 2012-Dec 2017

Assistant Professor

University of Trento, Dept. of Civil, Environmental and Mechanical Engineering, Trento, Italy

- Main research topics:
 - Numerical modelling of energy geo-structures
 - Thermo- and chemo-mechanical modelling of geomaterials
 - Modelling three-phase immiscible fluid flow in deformable porous media
- Main teaching responsibilities:
 - Slope Stability (Master level)
 - Foundation Engineering (Master level)
 - Earthquake Geotechnical Engineering (Doctoral level)

Business or sector Research & Education

Oct 2012-Aug 2013

Adjunct Professor

Turin-Tashkent Polytechnic University (Politecnico di Torino), Tashkent, Uzbekistan

- Module leader of the Geotechnical Engineering course to 3rd year BEng students.

Business or sector Research & Education

Jun 2010-Oct 2012

Geomechanics Specialist

ENI E&P Division, Geomechanics Laboratory (LAIP), Milan (Italy)

- Main duties included:
 - Supervision of experimental activity
 - Supervision of industrial research projects
 - Geomechanical consultancy for other corporate departments
 - Collaboration with the numerical modelling department for reservoir/drilling geomechanical studies.
 - Dissemination of research/technical activities by presenting seminars and workshops.
 - Tuition of corporate training courses.

Business or sector Oil&Gas industry

Jun 2009-May 2010

Geotechnical Consultant

SOIL Engineering Srl, Milan, Italy

- Road Engineering: viaduct and bridge foundations, numerical modelling of soil-structure interaction.
- Civil Geotechnical Engineering: interpretation of geotechnical site investigations, foundations of civil and industrial buildings, piled foundations, slope stability analysis.
- Marine Geotechnics: breakwater geotechnical design, driven foundation piles.

Business or sector Civil Engineering industry

EDUCATION AND TRAINING

May 2009

PhD in Civil Engineering & Environment

University of Southampton, UK

- Thesis Entitled “ The role of frictional heating in the development of catastrophic landslides”

Nov 2005

National qualification for the Engineering Practice (‘Abilitazione professionale’)

Italian Ministry of Education, University and Research (MIUR)

Jun 2005

MEng (5-year) degree in Civil/Environmental Engineering (‘Ingegneria per l’Ambiente e il Territorio’)

University of Bologna, Italy

- Final mark: 100/100 *cum laude*
- Thesis entitled “Application of the Particle Image Velocimetry method to triaxial testing measurements”

PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
Certificate of Proficiency in English (CPE) awarded by Cambridge ESOL Examinations, 2005					
French	B2	C1	B2	B2	B1
Certificate of attendance to DELF B2 preparation course at Alliance Française (VR), 2018					
Spanish	B1	B1	B2	B1	A2
Intermediate level certificate from the University of Southampton, School of Humanities, 2007					
Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user					
Common European Framework of Reference for Languages					

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Independent user	Proficient user	Independent user	Proficient user

Levels: Basic user - Independent user - Proficient user
[Digital competences - Self-assessment grid](#)

- Programming languages: Fortran, Matlab, Python (basics).
- Software: Abaqus, Mathematica, Plaxis, Geostudio, Rocscience, FLAC 3D, MS Office, CAD.

ADDITIONAL INFORMATION

Honours and awards

- Selected as Italian delegate and fully sponsored by AGI (Italian Geotechnical Association - ISSMGE) to attend the European Young Geotechnical Engineers Conference, Barcelona (Spain), 2-5 September 2014.
- Selected as delegate of Southampton University to participate to the “Set for Britain” research exhibition at the House of Commons, sponsored by the Chairman of the Parliamentary and Scientific Committee. Houses of Parliament, Westminster, London (UK), 9 March 2009.
- First prize “Best paper by a postgraduate research student in Computational Mechanics” awarded by the Association of Computational Mechanics in Engineering, Newcastle (UK), 2008.
- First prize “Joint award for best student poster at the university of Southampton” awarded by the Royal Academy of Engineering and FESM at the 2008 research showcase, Southampton (UK).

National & international collaborations

- Research collaborations established with a number of national and international institutions, including: University of Southampton (UK), NTUA, Athens (Greece), Politecnico di Torino (Italy), Politecnico di Milano (Italy), University of Leeds (UK) Université Grenoble (France), Duke University (USA), University of Surrey (UK), LNEC, Lisbon (Portugal), Heriot-Watt University (UK), TU Delft (The Netherlands)

International committees

- Member of the Editorial Board of international journal “Proceedings of the ICE - Geotechnical Engineering”, Institution of Civil Engineers, London
- Corresponding Member of Technical Committee TC308 “Energy Geotechnics” of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)

Association/group memberships

- Italian Geotechnical Association (AGI)
- Italian National Group of Geotechnical Engineering (GNIG)
- International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE)
- International Society for Rock Mechanics (ISRM)

External funding

- 2018-ongoing: EU H2020-WIDESPREAD-05-2017-Twinning- ENeRAG (Excellency Network Building for Comprehensive Research and Assessment of Geofluids) - 1 M€ - Staff
- 2016-ongoing: EU H2020-MSCA-ITN-721816 “XP-RESILIENCE” (Extreme loading analysis of petrochemical plants and design of metamaterial-based shields for enhanced resilience) - 3.4 M€ - Senior Staff and Co-tutor within the Coordinating Institution
- 2014- ongoing: EU H2020-COST Action TU1405 “GABI” (European network for shallow geothermal energy applications in buildings and infrastructures) - Member
- 2014- 2018: EU FP7-PEOPLE-IDEAS-ERC-340561 “INSTABILITIES” (Instabilities and nonlocal multiscale modelling of materials) - 2.38 M€ - Senior Staff within the Coordinating Institution
- 2013-2017: EU FP7-IAPP-609758 “HOTBRICKS” (Mechanics of refractory materials at high-temperature for advanced industrial technologies) - 1.1 M€ - Experienced Researcher within the Coordinating Institution

Reviewing activity

- Reviewer for the following journals: Landslides - Springer, Computers and Geotechnics - Elsevier, Journal of Mechanics of Materials and Structures - Mathematical Sciences Publishers, International Journal for Numerical and Analytical Methods in Geomechanics - Wiley, Soils and Foundations - Elsevier, Journal of Structural Engineering - ASCE, Environmental Geotechnics - ICE Publishing, Proceedings of the ICE - Geotechnical Engineering - ICE Publishing, Geotechnique letters - ICE Publishing, Geomechanics for Energy and the Environment - Elsevier, Mathematical Problems in Engineering - Hindawi Publishing, Italian Geotechnical Journal - Pàtron, Journal of Rock Mechanics and Geotechnical Engineering - Elsevier, Geophysical Journal International - Oxford University Press, Energy - Elsevier, Applied thermal Engineering - Elsevier, Applied Energy - Elsevier, Environmental Earth Sciences - Springer, Renewable Energy - Elsevier, Journal of Geophysical Research: Solid Earth - Wiley/AGU, Geothermics - Elsevier

Additional training

- Training certificate for teachers consisting of four modules: Anthropology, Psychology, Pedagogy and Teaching Methods & Technologies (24 CFU). University of Bologna, Academic Year 2017-18. Average mark 28.5/30.
- Seismic Geomechanics. EAGE, San Donato Milanese, 1-day intensive course by Dr J. Herwanger, May 2011.
- Drilling. Module of MSc in Petroleum Engineering, Politecnico di Torino, Torino, full-time 2-month course, February-March 2011.
- Geophysics under stress: geomechanical applications. EAGE, San Donato Milanese, 1-day intensive course by Dr C. Sayers, December 2010.
- Tar sand asset evaluation. Eni Corporate University, San Donato Milanese, 3-day intensive course by Dr P. M. Collins, October 2011.
- Reservoir engineering. Eni Corporate University, San Donato Milanese, 1-week intensive course by Prof. F. Verga, July 2010.
- Geoscience for the oil Industry, Eni Corporate University, San Donato Milanese, 1-week intensive course by Dr Lanzoni, July 2010.
- Mathematical modeling in Geomechanics, European Graduate School, ALERT geomaterials. Aussois, France, October 2010.
- Damage and fracture in geomaterials, European Graduate School, ALERT geomaterials. Aussois, France, October 2007.
- Finite Element Analysis. Module of the University of Southampton, by Dr A. Lock, A.Y. 2006-2007.
- Plasticity. Doctoral course at NTUA, Athens, by Prof. Y. Dafalias, A.Y. 2006-2007.
- International School on “Landslide Risk Assessment and Mitigation” (LARAM), 1st edition. 2-week course, Università di Salerno, September 2006.
- Geomechanical and structural issues in energy production, European Graduate School, ALERT geomaterials. Aussois, France, October 2006.
- Coupled multiphysics processes in geomechanics, European Graduate School, ALERT geomaterials. Aussois, France, October 2005.

ANNEXES

- List of selected publications

Personal information

I authorize the handling of personal information in this curriculum, according to D.Lgs n. 196/03 and following modifications and Regulations EU 679/2016 (General Regulations concerning Data Protection or GRDP) and art. 7 of University Regulations concerning protection of personal information.

I authorize, according to D.lgs 14/03/2013 n. 33 concerning transparency, in case of conferment of the position and of the fellowship, the publication of this curriculum in the web site of Università degli Studi di Milano in the section “Amministrazione trasparente”, “Consulenti e collaboratori”.

Date 14/12/2018

Francesco Cecinato

Journal Publications

- Gajo, A., Cecinato, F., Hueckel, T. (2018) "Chemo-mechanical modeling of artificially and naturally bonded soils". *Geomechanics for Energy and the Environment*, in press. [doi: 10.1016/j.gete.2018.11.005]
- Gajo, A., Cecinato, F., Loret, B. (2018) "A computational framework for immiscible three phase flow in deformable porous media". *Journal of Petroleum Science and Engineering*, 165 : 516-534. [doi: 10.1016/j.petrol.2018.01.026]
- Cecinato, F. (2018). Editorial. *Proceedings of ICE - Geotechnical Engineering* 171(1): 1-2. [doi: 10.1680/jgeen.2018.171.1.1]
- Vieira, A.; Alberdi-Pagola, M.; Christodoulides, P.; Javed, S.; Loveridge, F.; Nguyen, F.; Cecinato, F.; Maranhã, J.; Florides, G.; Prodan, I.; Van Lysebetten, G.; Ramalho, E.; Salciarini, D.; Georgiev, A.; Rosin-Paumier, S.; Popov, R.; Lenart, S.; Erbs Poulsen, S. and Radioti, G. (2017) "Characterisation of Ground Thermal and Thermo-Mechanical Behaviour for Shallow Geothermal Energy Applications". *Energies*, 10 (12), 2044. [doi:10.3390/en10122044]
- Di Donna, A., Cecinato, F., Loveridge, F., Barla, M. (2017) "Energy performance of diaphragm walls used as heat exchangers", *Proceedings of the Institution of Civil Engineers - Geotechnical engineering*, 3: 232-245. [doi: 10.1680/jgeen.16.00092]
- Gajo, A., Cecinato, F., Loret, B. (2017) "Deformable porous media saturated by three immiscible fluids: constitutive modeling and simulations of injection and imbibition tests". *Transport in Porous Media*, 116 (1) : 19-51. [doi: 10.1007/s11242-016-0763-2]
- Cecinato, F. (2016). Editorial. *Proceedings of ICE - Geotechnical Engineering* 169(3): 225-226. [doi: 10.1680/jgeen.2016.169.3.225]
- Gajo, A., Cecinato, F. (2016). "Thermo-mechanical modelling of rock-like materials at very high temperature: Application to ceramic refractories". *Journal of the European Ceramic Society* 36(9): 2193-2204. [doi: 10.1016/j.jeurceramsoc.2015.12.031]
- Loveridge, A., Cecinato, F. (2016). "Thermal performance of thermoactive continuous flight auger piles". *Environmental Geotechnics*, 3 (4):265-279 [doi : 10.1680/jenge.15.00023]
- Gajo, A., Cecinato, F., Hueckel, T. (2015). "A micro-scale inspired chemo-mechanical model of bonded geomaterials". *International Journal of Rock Mechanics and Mining Sciences*, 80 : 425-438 [doi: 10.1016/j.ijrmms.2015.10.001]
- Cecinato, F., Loveridge, A. (2015). "Influences on the thermal efficiency of energy piles". *Energy* (82) : 1021-1033. [doi:10.1016/j.energy.2015.02.001]
- Cecinato, F., Gajo, A. (2014). "Dynamical effects during compaction band formation affecting their spatial periodicity". *Journal Of Geophysical Research* 119 (10): 7487-7502. [doi: 10.1002/2014JB011060]
- Cecinato, F., Zervos, A. (2012). "Influence of thermo-mechanics in the catastrophic collapse of planar landslides". *Canadian Geotechnical Journal*, 49(2): 207-225. [doi: 10.1139/T11-095]
- Cecinato, F., Zervos, A., Veveakis, E. (2011). "A thermo-mechanical model for the catastrophic collapse of large landslides". *International Journal for Numerical and Analytical Methods in Geomechanics* 35(14): 1507-1535. [doi:10.1002/nag.963]

Books

- F. Cecinato, *Mechanics of Catastrophic Landslides*, Saarbrücken: LAP Lambert Academic Publishing, 2011. [ISBN: 9783845479194]

Conference publications

- Della Vecchia, G., Cremonesi, M., Cecinato, F., Pisanò, F. (2018). *Sulla modellazione di sabbie liquefatte come fluidi non newtoniani*. Proc. IARG 2018 conference, Genova, Italy, 4-6 July
- Gajo, A., Cecinato, F., Hueckel, T. (2017). *Modellazione chemo-meccanica di terreni naturalmente e artificialmente cementati*. Proc. IARG 2017 conference, Matera, Italy, 5-7 July
- Cecinato, F., Piglialepre, R., Loveridge, F., Nicholson, D. (2016). *Numerical analysis of thermal cycling during a multi-stage energy pile thermal response test*. In Energy Geotechnics, F. Wuttke et al (Eds.), CRC Press, Leiden, NL [ISBN: 9781138032995]
- Gajo, A., Cecinato, F., Hueckel, T. (2016). *Chemo-Mechanical Coupling in Bonded Geomaterials: Representations in Two Scales*. In Geo-Chicago 2016: Sustainability and Resiliency in Geotechnical Engineering, D. Zekkos et al (Eds.), ASCE Geotechnical Special Publications, Chicago, USA. [doi: 10.1061/9780784480120.015]
- Gajo, A., Cecinato, F., Hueckel, T. (2016). *Chemo-mechanical modelling of cemented soils, from the microscale to the volume element*. In CNRIG2016 - Geotechnical Engineering in Multidisciplinary Research: from Microscale to Regional Scale, G. Gottardi and L. Tonni (Eds.), Procedia Engineering Vol. 158. [doi: 10.1016/j.proeng.2016.08.398]
- Gajo, A., Cecinato, F. (2016). *Thermo-mechanical modelling of geomaterials subjected to very high temperature changes*. Proc. EUROMECH Colloquium 572 - Constitutive Modelling of Soil and Rock, Innsbruck, Austria, 22-24 February
- Cecinato, F., Loveridge, F., Gajo, A., Powrie, W. (2015). *A new modelling approach for piled and other ground heat exchanger applications*. In Geotechnical Engineering for Infrastructure and Development: XVI European Conference on Soil Mechanics and Geotechnical Engineering, MG Winter et al (Eds.), ICE Publishing. [ISBN: 072776067X]
- Loveridge, F., Cecinato, F. (2015). *What is the potential for pipe to pipe interactions in energy piles?* Proc. International Symposium on Energy Geotechnics, Barcelona Spain, 2-4 June
- Gajo, A., Cecinato, F., Hueckel, T. (2015). *Micro- to macro-scale chemo-mechanical modeling of bonded geomaterials*. In CERMODEL 2015 - Modelling and simulation meet innovation in ceramics technology, Trento, Italy, 1-3 July
- Gajo, A., Cecinato, F., Hueckel, T. (2015). *A coupled chemo-mechanical model for cemented soils, from the micro- to the macro-scale*. Proc. IARG 2015 conference, Cagliari, Italy, 24-26 June
- Gajo, A., Cecinato, F., Loret, B. (2015). *Finite Element Analysis of fluid imbibition in a deformable porous medium saturated by three immiscible fluids*. In CERMODEL 2015 - Modelling and simulation meet innovation in ceramics technology, Trento, Italy, 1-3 July
- Gajo, A., Cecinato, F. (2015). *Thermodynamically consistent modelling of ceramic refractory materials*. In CERMODEL 2015 - Modelling and simulation meet innovation in ceramics technology, Trento, Italy, 1-3 July
- Cecinato, F. (2014). *Numerical analysis for improved design of piled and other ground heat exchanger applications*. Proc. 23rd European Young Geotechnical Engineers Conference (EYGEC), Barcelona, Spain, 2-5 September. [ISBN: 8469710362, 97884]
- F Cecinato; F Loveridge (2014). *A numerical model for energy-efficient design of geothermal systems*. In 25th ALERT Workshop, Booklet of abstracts, Aussois (France), 29 September-1 October. [ISBN: 9782954251721]
- F. Cecinato; A. Gajo (2014). *Analysis of dynamical effects in the formation of compaction bands*. In Geomechanics from Micro to Macro, K. Soga et al (Eds.), CRC Press, Cambridge, UK. [ISBN: 9781138027077]
- F. Cecinato; A. Gajo (2014). *Un modello numerico per l'ottimizzazione di pali di fondazione geotermici*. Proc. IARG 2014 conference, Chieti, Italy, 14-16 July
- F. Cecinato; F. Loveridge (2014). *Un approccio innovativo per la modellazione di pali di fondazione geotermici*. Proc. IV IAGIG conference, L'Aquila, Italy, 11-12 April
- A. Gajo; F. Cecinato (2013). *Dynamical effects in the formation of compaction bands*. 24th ALERT Workshop, Booklet of abstracts, Aussois (France), 30 September-2 October. [ISBN 9782954251714]

- A. Gajo; F. Cecinato (2013). *Effetti dinamici nella formazione di bande di compattazione*. Proc. IARG 2013 conference, Perugia, Italy, 16-18 September
- F. Cecinato (2013). *Thermo-mechanical modelling of granular materials*. In CERMODEL 2013 - Modelling and simulation meet innovation in ceramics technology, Trento, Italy, 10-12 July
- Cecinato, F. (2012). *Modellazione termo-poro-meccanica, dalle frane ai giacimenti di idrocarburi non convenzionali*. Proc. II IAGIG conference, Bologna, Italy, 4-5 May
- F. Cecinato; G. Capasso; A. Zervos (2011). *Thermo-mechanical modelling from landslides to unconventional hydrocarbon reservoirs*. In 22nd ALERT Workshop, Booklet of abstracts, Aussois, France, 3-5 October. [ISBN: 9782839909419]
- A. Zervos; F. Cecinato; E. Veveakis (2010). *A thermomechanical model for catastrophic landslides* in 9th HSTAM International Congress on Mechanics, Athens: Hellenic Society of Theoretical & Applied Mechanics. Lymassol (Cyprus), 12-14 July 2010
- F. Cecinato (2009), *Thermo-mechanical collapse of catastrophic landslides* in Postgraduate Research Students' Symposium 2009, Southampton: University of Southampton, Southampton (UK), 23 March 2009
- F. Cecinato; A. Zervos; E. Veveakis; I. Vardoulakis (2008), *Numerical modelling of the thermo-mechanical behaviour of soils in catastrophic landslides* in Landslides and Engineered Slopes, London: Taylor and Francis. [ISBN: 9780415411967]
- F. Cecinato; G. Gottardi; A. Zervos (2008), *Studio sperimentale sull'applicazione del metodo Particle Image Velocimetry per la misura delle deformazioni nelle prove triassiali*. Proc. IARG 2008 conference, Catania, Italy. [ISBN: 9788855530118]
- F. Cecinato; A. Zervos (2008), *Thermo-mechanical modelling for velocity prediction in catastrophic landslides* in Geophysical Research Abstracts, Vienna: European Geosciences Union. - (Geophysical Research Abstracts). Proc. EGU General Assembly 2008, Vienna, 13-18 April 2008
- F. Cecinato; A. Zervos (2008), *Thermo-mechanical modelling of catastrophic landslides* in 16th UK Conference on Computational Mechanics, Newcastle upon Tyne: Newcastle University. [ISBN: 9780701702182]
- F. Cecinato; A. Zervos (2008), "Thermo-mechanical modelling of large scale landslides" in 10th YGES, London: British Geotechnical Association. London, 25-27 June 2008
- F. Cecinato; A. Zervos (2008), "Un modello termo-meccanico per l'analisi dinamica delle frane catastrofiche" Proc. IARG 2008 conference, Catania. [ISBN: 9788855530118]
- F. Cecinato (2008), "Velocity prediction in catastrophic landslides through thermo-mechanical modelling" In "Creating the Future" - Postgraduate Research Showcase, Southampton (UK)