



Europass Curriculum Vitae

Personal information

First name(s) / Surname(s)

E-mail

Fabio Rollo

Academic experience

Dates

Occupation or position held

Main activities and responsibilities

Name and address of employer

Dates

Occupation or position held

Main activities and responsibilities

Name and address of employer

Type of business or sector

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Status: Postdoctoral Research Fellow

01/10/2021 – 31/12/2021

Visiting Postdoctoral fellow

Research activity: "Modelling landslide triggering and runout in natural slopes"

Dept. of Civil and Environmental Engineering – Northwestern University, Evanston IL, USA

01/08/2020 – 31/07/2022

Post-doc research fellow

Research activity: "Evaluation of the seismic behaviour of earth dams"

Department of Structural and Geotechnical Engineering – Sapienza University of Rome

Research activity – Scientific Coordinator: Prof. Eng. Sebastiano Rampello

01/06/2019 – 31/05/2020

Post-doc research fellow

Research activity: "Thermodynamic-based constitutive modelling of soils: from mathematical formulation to the analysis of slopes in seismic areas"

Department of Structural and Geotechnical Engineering – Sapienza University of Rome

Research activity – Scientific Coordinators: Prof. Eng. Angelo Amorosi, Sebastiano Rampello

01/06/2018 – 30/09/2018

Collaboration for research activity

Research activity: "Evaluation of triggering instability in slopes characterised by cohesionless soils under seismic conditions"

Department of Structural and Geotechnical Engineering – Sapienza University of Rome

Research activity – project Reluis 2018 – Scientific Coordinator: Prof. Eng. Sebastiano Rampello

01/08/2017 – 31/12/2017

Scholarship for research activity

Research activity: "Stability analyses of ideal slopes in cohesionless soils under static and dynamic conditions through an advanced constitutive model"

Department of Structural and Geotechnical Engineering – Sapienza University of Rome

Research activity – project Reluis 2017 – Scientific Coordinator Prof. Eng. Sebastiano Rampello

01/10/2016 – 30/11/2016

Scholarship for research activity

Main activities and responsibilities	Research activity: "Analyses of the monotonic and cyclic response of an advanced constitutive model for cohesionless soils able to reproduce cyclic mobility"
Name and address of employer	Department of Structural and Geotechnical Engineering – Sapienza University of Rome
Type of business or sector	Research activity – project Reluis 2016 – Scientific Coordinator: Prof. Eng. Angelo Amorosi
Dates	01/03/2015 – 31/12/2015
Occupation or position held	Collaboration for research activity
Main activities and responsibilities	Definition of impedance matrix for foundation systems: implementation in automatic codes and validation
Name and address of employer	Department of Structural and Geotechnical Engineering – Sapienza University of Rome
Type of business or sector	Collaboration for research activity under the direction of Prof. Eng. Alberto Burghignoli

Education and training

Dates	11/2015 – 02/2019
Title of qualification awarded	Doctor of Philosophy in Structural and Geotechnical Engineering
Principal subjects/occupational skills covered	Title of the thesis: "Elastic anisotropy and elastoplastic coupling of soils: a thermodynamic approach"
Name and type of organisation providing education and training	Department of Structural and Geotechnical Engineering – Sapienza University of Rome Supervisor: Prof. Ing. Angelo Amorosi
Level in national or international classification	Doctoral degree in Structural and Geotechnical Engineering Final degree mark: Ottimo con lode – Excellent (with merit) Date of dissertation: 26/02/2019
Dates	06/10/2015
Title of qualification awarded	Professional qualification in Civil Engineering
Name and type of organisation providing education and training	Sapienza University of Rome – Faculty of Civil Engineering
Dates	11/2011 – 01/2015
Title of qualification awarded	Master's degree in Civil Engineering (Geotechnical Engineering) Final degree mark: 110/110 cum laude - Date: 28/01/2015
Principal subjects/occupational skills covered	Title of the thesis: "Geotechnical design of shaft foundations" – Supervisor: Prof. Alberto Burghignoli Type of thesis: Theoretical/experimental
Name and type of organisation providing education and training	Sapienza University of Rome – Faculty of Civil Engineering
Dates	11/2008 – 12/2011
Title of qualification awarded	Bachelor's degree in Civil Engineering
Principal subjects/occupational skills covered	Final degree mark: 108/110 - Date: 20/12/2011
Name and type of organisation providing education and training	Sapienza University of Rome – Faculty of Civil Engineering
Dates	2003 - 2008
Title of qualification awarded	Scientific certificate – School leaving examination mark: 98/100
Principal subjects/occupational skills covered	Double language studies (English and French)
Name and type of organisation providing education and training	Liceo Scientifico Statale "John Fitzgerald Kennedy", via Nicola Fabrizi, Roma, Italy

Personal skills and competences

Mother tongue(s) **Italian**

Other language(s)

Self-assessment

European level (*)

English

French

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C1	advanced	C1	advanced	C1	advanced	C1	advanced	C1	advanced
B2	independent	B2	independent	B2	independent	B2	independent	B2	independent

(*) [Common European Framework of Reference for Languages](#)

Research interests

Constitutive modelling of soils and rocks in the framework of multi-surface hardening plasticity; application of thermodynamic principles to the modelling of anisotropy, breakage and elasto-plastic coupling of soils. Soil-structure interaction related problems; Finite Element analyses of geotechnical boundary value problems: seismic site effects, seismic behaviour of natural slopes, earth dams, liquefaction, seismic hazard, rock blocks stability analyses.

Computer skills and competences

Microsoft Office (Excel, Word, PowerPoint)
Languages Matlab, Fortran
FEM codes: Plaxis 2D-3D, Geo-studio package, SAP2000, Abaqus
CAD instruments (Autocad)
Grapher, Surfer

Publications in international journals

Rollo, F., & Amorosi, A. (2022). Isotropic and anisotropic elasto-plastic coupling in clays: a thermodynamic approach. *International Journal of Solids and Structures*, 111668. <https://doi.org/10.1016/j.ijsolstr.2022.111668>

Rollo F., Rampello S. (2021). Probabilistic assessment of seismic-induced slope displacements: an application in Italy. *Bull Earthquake Eng.* 19, 4261-4288. <https://doi.org/10.1007/s10518-021-01138-5>.

Amorosi, A., Rollo, F., & Dafalias, Y. F. (2021). Relating elastic and plastic fabric anisotropy of clays. *Géotechnique*, 71(7), 583-593. <https://doi.org/10.1680/jgeot.19.P.134>

Rollo F., Amorosi A. (2020). SANICLAY-T: Simple thermodynamic-based anisotropic plasticity model for clays. *Computers and Geotechnics*, 127,103770. <https://doi.org/10.1016/j.compgeo.2020.103770>.

Dafalias, Y. F., Taiebat, M., Rollo, F., & Amorosi, A. (2020). Convergence of rotational hardening with bounds in clay plasticity. *Géotechnique Letters*, 10(1), 16-19. <https://doi.org/10.1680/jgele.19.00012>.

Amorosi, A., Rollo, F. & Houlsby, G.T. (2020). A nonlinear anisotropic hyperelastic formulation for granular materials: comparison with existing models and validation. *Acta Geotech.* 15, 179-196. <https://doi.org/10.1007/s11440-019-00827-5>.

Houlsby, G. T., Amorosi, A., & Rollo, F. (2019). Non-linear anisotropic hyperelasticity for granular materials. *Computers and Geotechnics*, 115, 103167. <https://doi.org/10.1016/j.compgeo.2019.103167>

Publications in conference proceedings

Rollo F., Rampello S. (2021). Analisi della risposta sismica dei pendii mediante un approccio probabilistico, in: *Incontro Annuale dei Ricercatori di Geotecnica – IARG online 2021*, pp. 1 - 6 ISBN: 9788897517153.

Di Filippo G., Rollo F., Casablanca O., Masini L. (2021). Analisi preliminari della risposta sismica di una diga in terra, in: *Incontro Annuale dei Ricercatori di Geotecnica – IARG online 2021*, pp. 1 - 6 ISBN: 9788897517153.

Amorosi A., Rollo F., Dafalias Y.F. (2021). Evolving Elastic and Plastic Fabric Anisotropy in Granular Materials: Theoretical and Applied Implications. In: Barla M., Di Donna A., Sterpi D. (eds) Challenges and Innovations in Geomechanics. IACMAG 2021. Lecture Notes in Civil Engineering, vol 125. Springer, Cham. https://doi.org/10.1007/978-3-030-64514-4_72.

Rollo F., Amorosi A. (2021). Elasto-Plastic Coupling in Soils: A Thermodynamic-Based Approach. In: Barla M., Di Donna A., Sterpi D. (eds) Challenges and Innovations in Geomechanics. IACMAG 2021. Lecture Notes in Civil Engineering, vol 125. Springer, Cham. https://doi.org/10.1007/978-3-030-64514-4_56.

Amorosi A., Rollo F., Gagliardini L. (2020). The Analysis of Weak Rock Block Behaviour by an Advanced Constitutive Model. In: *Geotechnical Research for Land Protection and Development*. CNRIG 2019. Lecture Notes in Civil Engineering, vol 40, pp. 611-620. Springer, Cham. https://doi.org/10.1007/978-3-030-21359-6_65.

Amorosi A., Rollo F., Lilliu E., (2019). Seismic induced landslides in sand: a numerical approach, in: Silvestri & Moraci (Eds) *Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions – Vol. 4*, pp. 1114 - 1121 (7th ICEGE) ISBN: 978-0-367-14328-2.

Amorosi A., Rollo F., Houlsby G.T., (2018). A nonlinear hyperelastic anisotropic model for soils, in: *Micro to MACRO Mathematical Modelling in Soil Mechanics, Trends in Mathematics –* pp. 11 - 22 ISBN: 978-3-319-99473-4

Rollo F., Amorosi A. (2018). Un modello iperelastico non lineare anisotropo per lo studio della risposta reversibile dei terreni, in: *Incontro Annuale dei Ricercatori di Geotecnica – IARG 2018*, pp. 1 - 6 ISBN: 9788897517016.

Amorosi A., Rollo F., Boldini D., (2018). A modified bounding surface plasticity model for sand, in: *Numerical Methods in Geotechnical Engineering IX*, London, Taylor & Francis Group, 2018, 1, pp. 213 – 220 ISBN: 978-1-138-33198-3

Amorosi A., Rollo F., Boldini D., di Lernia A, (2017). Analisi della risposta ciclica di terreni granulari attraverso un modello bounding surface, in: *Incontro Annuale dei Ricercatori di Geotecnica – IARG 2017*, 2017, pp. 1 - 6 ISBN: 978-88-99432-30-0

Amorosi A., Rollo F., Boldini D., di Lernia A, (2017). Previsione del comportamento ciclico di sabbie alle piccole, medie e grandi deformazioni mediante un modello bounding surface, in: *La Geotecnica nella Conservazione e Tutela del Patrimonio Costruito*, Roma, Associazione Geotecnica Italiana, 2017, 2, pp. 403 - 411 ISBN:978 88 97517 09 2

Amorosi A., Boldini D., di Lernia A., Rollo F, (2016). Three-dimensional advanced numerical approaches to the seismic soil and structural response analyses, in: *Archaeology, Cryptoportici, Hypogea, Geology, Geotechnics, Geophysics, L'Aquila, DISS_Edition*, 2016, pp. 299 - 316 ISBN:978-88-940114-2-5

Awards and institutional service

Awarded a Special Mention for the “PhD theses award 2020” for the years 2017 – 2020. Sapienza University of Rome, 19 April 2022.

2022 – Reviewer for the “International Journal of Solid and Structures”

2021 – Reviewer for the Rivista Italiana di Geotecnica (RIG)

2021 – Reviewer for the international journal “Bulletin of Earthquake Engineering”

2019-2021 – Reviewer for the international journal “Géotechnique Letters”

Awarded as “Laureato Eccellente” for the faculty of Civil and Industrial Engineering for the academic year 2013-2014. Sapienza University of Rome, 23 April 2015.

Invited talk and workshop

Invited seminar at Northwestern University, Evanston, IL (USA) – 17 November 2021
Title: Modelling anisotropy and elasto-plastic coupling of clays: a thermodynamic perspective

Invited seminar at University of Tor Vergata, Roma, Italy – 22 July 2021
Title: Anisotropia e accoppiamento elasto-plastico dei terreni: aspetti fenomenologici e modellazione su base termodinamica

Invited seminar at Politecnico di Milano, Milano, Italy – 24 June 2019
Title: Elastic anisotropy and elasto-plastic coupling of soils: a thermodynamic approach

7ICEGE – 7th International Conference on Earthquake Geotechnical Engineering – Rome, Italy. 17-20 June 2019
Title: Seismic-induced landslides in sand: a numerical approach

NUMGE 2018 – the 9th European Conference on Numerical Methods in Geotechnical Engineering – University of Porto, 25 to 27 June 2018.
Title: A modified bounding surface plasticity model for sand

Funded research projects

Project title: Evaluation of the seismic behaviour of earth dams through advanced constitutive models
Role: PI
Sponsor: Sapienza University of Rome
Award amount: 3.300,00€
Award period: 2021

Project title: Constitutive modelling of the anisotropic behavior of soils
Role: PI
Sponsor: Sapienza University of Rome
Award amount: 1.000,00€
Award period: 2017

Project title: Modification of a constitutive model for the study of the seismic response of cohesionless soils
Role: PI
Sponsor: Sapienza University of Rome
Award amount: 1.000,00€
Award period: 2016

Teaching activities

Dates	March 2021 - ongoing
Main activities and responsibilities	Adjunct Professor for the course “Geotechnical Studies of Territories” for the Faculty of Architecture
Name and address of employer	Sapienza University of Rome
Dates	March 2017 - ongoing
Main activities and responsibilities	Teaching assistantship for the course “Slope stability” for the Faculty of Engineering
Name and address of employer	Sapienza University of Rome
Dates	07/10/2015 – 09/10/2015
Main activities and responsibilities	Course on “Soil – structure interaction
Name and address of employer	CISM – International Centre of Mechanical Science – Palazzo del Torso, Piazza Garibaldi 18 – 33100 Udine (Italy)

Student supervision

Federico Pacetta, Sapienza University of Rome, M. S. in Civil Engineering (graduated in 2021)
Research topic: Coupled dynamic analyses of transversal behaviour of tunnels in liquefiable soils

Erica Lilliu, Sapienza University of Rome, M. S. in Civil Engineering (graduated in 2019)
Research topic: Numerical analyses of seismic-induced landslides in cohesionless soils

Letizia Gagliardini, Sapienza University of Rome, M. S. in Civil Engineering (graduated in 2019)
Research topic: Finite element stability analyses of tuff cliffs

Ludovica Citterio, Sapienza University of Rome, M. S. in Civil Engineering (graduated in 2019)
Research topic: Numerical analyses of two Italian landslides

Roma, 10/05/2022