

POLYNIKIS VAZOURAS – CURRICULUM VITAE

PERSONAL DATA

Date of Birth: 10th February, 1983

Place of Birth: Athens, Greece

Nationality: Greek

Email: pvazour@yahoo.gr

EDUCATION

- 2013: Ph.D. in Structural / soil Mechanics, Department of Civil Engineering, University of Thessaly, Volos, Greece. Title:
"Mechanical behaviour of buried steel pipelines crossing active strike-slip faults"
- 2007: Master of Science in Engineering (M.Sc.) in Applied Mechanics, Systems Modeling and Simulation, Department of Civil Engineering, University of Thessaly, Volos, Greece.
- 2005: Diploma (5-year degree) in Civil Engineering, University of Thessaly, Volos, Greece. Grade 8.19/10, Thesis: *"Effect of a Liquefiable Soil on Dynamic Soil-Structure Interaction"*, Advisor: Professor P. Dakoulas.

LANGUAGES

- Greek – Fluent (Native user),
- English – excellent spoken and written, (C2),
- German – Basic (Zertificat Deutch als Fremdsprache – B2)

PROFFESIONAL EXPERIENCE

2019-present: Pipeline Engineer at Municipal Water and Sewerage Company, DEYAMV, Volos, Greece

2018-2019: Finite element Analyst, Ioannina, Greece

2016-2018: Finite element Analyst, Munich, Germany

2015: FE Analyst for Seismic Design of Trans Adriatic Pipeline, E.ON Technologies GmbH, Germany

2013 – 2015: Research Associate in the laboratory of Soil mechanics NTUA, Athens

2007 – 2013: Research Associate in the Structural Mechanics Group, Department of Mechanical Engineering, University of Thessaly, Volos, Greece.

2005 – 2007: Doubiotis I. & partners, Building construction company. Responsible for structural design of buildings, Volos, Greece.

2005– present: Member of Technical Chamber of Greece

POST-DOC

2018-2019: Numerical and Experimental Simulation of Upheaval Buckling of Buried Pipelines due to High Pressure and Temperature

2013-2015: Contemporary Evaluation Methodology of Seismic Vulnerability and Upgrade of Port Facilities.

IT SKILLS

FE analysis: ABAQUS, M.C.S Marc Mentat,

Programming languages: Fortran 90/95, Matlab, Mathematica, Python

Structural analysis software: INSTANT, Cubus STATIK,

Finite difference analysis: FLAC

Engineering design software: AutoCAD, Siemens NX

SKILLS

Communicative, organisational, efficient in teamwork management and administration

PARTICIPATION IN RESEARCH PROJECTS:

- **UPGRADE (2012-2015).**

Contemporary Evaluation Methodology of Seismic Vulnerability and Upgrade of Port Facilities.

Sponsor: The European Union (European Social Fund – ESF) and Greek national funds.

Partners: National Technical Uni of Athens, Univ. of Thessaly, Aristotle Uni of Thessaloniki. This research formulates an integrated framework for the estimation of the Systemic Seismic Vulnerability of Port Facilities. Taking into account that the failure of one or more components of a facility can lead to different degrees of system degradation, the project aims at quantifying the earthquake effects on the performance of the entire system. Worked on seismic behavior of quay walls at Pireaus and Volos ports using advanced numerical simulation based on sophisticated *constitutive models appropriate for cyclic behavior of liquefiable soils*.

- **TAP (2015):** Seismic Design of Trans Adriatic Pipeline

Sponsor: E.ON Technologies GmbH, Germany. Responsible for soil-pipeline interaction modeling and pipeline stress analysis.

- **GIPIPE (2011-2014):** Safety of Buried Steel Pipelines Under Ground-Induced Deformations

Sponsor: European Commission, program RFSR-CT-20011-00027, (www.mie.uth.gr/gipipe), Partners: Univ. of Thessaly, Centro Sviluppo Materiali, Delft Univ. of Technology, National Technical University of Athens, Corinth Pipeworks SA, Tebodin B.V. My involvement in this project has focused on the analysis of buried steel pipelines subjected to permanent ground deformation such as faults, landslides, lateral spreading. Also I was responsible for the numerical simulation of large scale experiments which conducted at CSM facilities in Calgary.

- **INDUSE (2009-2012):** Structural safety of industrial steel tanks, pressure vessels and piping systems under seismic loading, Sponsor: European Commission, program RFSR-CT-2009-00022, (www.mie.uth.gr/induse), Partners: Univ. of Thessaly, CSM, Univ. of Trento, Delft Univ. of Technology, RWTH Aachen, EBETAM AE, TechniPetroL Hellas. My

involvement in this project has focused on the analysis and design of industrial steel elbows subjected to extreme loading conditions.

- **ATTEL (2008-2011):** Performance-based approaches for high strength tubular columns and connections under earthquake and fire loadings, Sponsor: European Commission, program RFSR-CT-2008-00037, Partners: Univ. of Trento, Centro Sviluppo Materiali, Univ. of Liege, Univ. of Thessaly, Stahlbau Pichler. My involvement in this project has focused on the development of numerical models for the analysis of tubular members made of high-strength steel and subjected to extreme loading conditions.
- **PRECASTEEL(2007-2010):** Prefabricated steel structures for low-rise buildings in seismic areas, Sponsor: European Commission, program RFSR-CT-2008-00035, Partners: ILVA S.p.A., Univ. of Camerino, Technical Univ. of Aachen, Univ. of Thessaly, Univ. of Pisa, Univ. de Navara, Ferriere Nord S.p.A., Shelter S.A., Istituto de Soldadura e Qualidade, VTT Technical research center of Finland, OCAM s.r.l. My involvement in this project has focused on the analysis, design and optimization of numerous industrial buildings in terms of weight-consumption with emphasis on their cost-efficiency. The result of this work has been used for the development of an on-line predesign tool.

TEACHING EXPERIENCE

- 2019-2022: Instructor of the course: «**Environmental Geotechnical Engineering**», 9th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2021-2022: Instructor of the course: **Soil Mechanics II**, 6th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2021-2022: Instructor of the course: **Special Topics of Soil Mechanics**, 9th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2020-2021: Instructor of the course: «**Computational Geotechnical Engineering II**», 10th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2020-2021: Instructor of the course: «**Computational Geotechnical Engineering** », 8th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2019-2020: Instructor of the course: «**Environmental Geotechnical Engineering**», 9th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2019-2020: Instructor of the course: « **Technical Geology and Rock Mechanics**», 8th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2019-2020: Instructor of the course: «**Computational Geotechnical Engineering** », 8th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2010-2013: Teaching assistant of the course: **Soil Mechanics I**, 5th Semester, **Soil Mechanics II**, 6th Semester, Department of Civil Engineering, University of Thessaly, Volos, Greece
- 2010-2011: Instructor of the course: «**Mechanics**», Department of Forestry and Natural Environment Administration, Technological Educational Institute, Larissa, Greece
- 2010-2011: Instructor of the course: «**Descriptive Geometry**», Department of Forestry and Natural Environment Administration, Technological Educational Institute, Larissa, Greece

AWARDS - SCHOLARSHIPS

2006: Post Graduate scholarship from Bodossakis Foundation, Athens Greece

2008: Honor Award from National Technical Chamber of Greece for outstanding performance during undergraduate studies

2008: PhD scholarship from A.G. Leventis Foundation, Athens Greece

2009: PhD scholarship from Education and European Culture Foundation, Athens Greece

RESEARCH INTERESTS

Soil Mechanics, Earthquake Engineering, Inelastic behavior of Materials, Structural Mechanics, Numerical Methods and Finite Elements, Stability and Buckling

PUBLICATIONS

Publications in Peer-Review Journals

- [1] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P. (2010), "Finite Element Analysis of Buried Steel Pipelines Under Strike-Slip Fault Displacements", *Soil Dynamics and Earthquake Engineering*, Vol. 30, No. 11, pp. 1361–1376.
- [2] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P. (2012), "Mechanical behavior of buried steel pipes crossing active strike-slip faults", *Soil Dynamics and Earthq. Engineering*, Vol. 41 pp. 164–180.
- [3] **Vazouras, P.**, Dakoulas, P., and Karamanos, S. A., (2015) "Pipe-Soil Interaction and Pipeline Performance Under Strike-Slip Fault Movements.", *Soil Dynamics and Earthquake Engineering*, Vol. 72, pp. 48–65.
- [4] **Vazouras, P.**, Karamanos, S. A. (2017) "Structural Behavior of Buried Pipe Bends and Their Effect on Pipeline Response in Fault Crossing Areas" *Bulletin of Earthquake Engineering* Vol. 15 No11.
- [5] G. C. Sarvanis, S. A. Karamanos, **P. Vazouras**, E. Mecozzi, A. Lucci, P. Dakoulas (2017) "Permanent Ground-Induced Actions in Buried Pipelines: Numerical Modelling and Experimental Verification" *Journal of Earthquake Engineering and Structural Dynamics* 2017;1-22.
- [6] Dakoulas, P, **Vazouras, P**, Kallioglou, P, Gazetas, G (2018), "Effective stress seismic analysis of gravity multi-block quay wall", *Journal of Soil Dynamics and Earthquake Engineering*, 118, 378-393.
- [7] **P. Vazouras**, A. Tsatsis and P. Dakoulas (2020). Thermal upheaval buckling of buried pipelines: experimental behavior and numerical modelling " *Journal of Pipeline Systems Engineering and Practice*" 2021, 12(1): 04020057

Contribution in Books

- [1] Karamanos, S. A., Gresnigt, A. M. and Dijkstra, G. J. (Eds.), *Geohazards and Pipelines, State-of-the-art design using experimental, numerical and analytical methodologies*, Springer Nature, Cham, Switzerland, 175 pages, **Co-Author** in Chapters 4,5 and 7. (in press)

Publications in Conference Proceedings

- [1] Dakoulas, P., Kalyvas, G and **Vazouras P.**, (2007), Effect Of A Liquefiable Soil Layer On Soil-Structure Interaction And Building Damage, 4th International Conference on Earthquake Geotechnical Engineering, Thessaloniki, June 2007, Greece
- [2] Dakoulas, P., **Vazouras, P.**, and Karamanos, S. A., "Stress State and Limit Strength of Underground Steel Pipelines in Active Faults", *3rd National Conference on Earthquake Engineering and Engineering Seismology*, Paper No. 2029, Athens, Greece, November 2008 (in Greek).
- [3] **Vazouras, P.**, Dakoulas, P., and Karamanos, S. A., "Finite Element Analysis of Buried Pipelines Under Seismic-Fault Displacement", *COMPDYN 2009 Conference*, paper CD441, Rhodes, Greece, June 2009.
- [4] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P., "Behavior of Underground Steel Gas Pipelines Passing Through Active Faults", *6th National Conference on Geotechnical and Geoenvironmental Engineering*, Volos, Greece, September 2010 (in Greek).
- [5] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P., "Finite Element Analysis of Buried Steel Pipelines Under Strike-Slip Fault Displacements.", *COMPDYN 2011 Conference*, Corfu, Greece, May 2011.
- [6] Pappa, P., Vasilikis, D., **Vazouras, P.**, and Karamanos, S. A., "On the Seismic Behaviour and Design of Liquid Storage Tanks", *COMPDYN 2011 Conference*, Corfu, Greece, May 2011.
- [7] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P., "Buried Steel Pipelines Under Tectonic Fault Displacements", *Offshore Mechanics and Arctic Engineering Conference*, ASME, OMAE 2011, Rotterdam, The Netherlands, June 2011.
- [8] **Vazouras, P.**, Karamanos, S. & Dakoulas, P. (2011), "Seismic Performance of Buried Steel Pipelines Crossing Strike-Slips Seismic Faults", 4nd Japan-Greece Workshop on Seismic Design, Observation and Retrofit of Foundations, Kyoto, October, 2011.
- [9] **Vazouras, P.**, Karamanos, S. & Dakoulas, P. (2011), "Seismic Performance of Buried Steel Pipelines Subjected to Seismic Fault Movement", XV European Conf. on Soil Mechanics & Geotechnical Engineering, ERTC-12 Workshop on Evaluation of EC8, September 2011, Athens, Greece.
- [10] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P., "Numerical Simulation of Buried Steel Pipelines Under Strike-Slip Fault Displacements", *International Conference on Pipeline Engineering & Construction*, ASCE, Seattle, WA, July 2011.
- [11] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P. (2012), "Performance of Buried Steel Pipelines Subjected to Seismic-Fault-Induced Deformations", 2nd International Conference Performance-Based Design in Earthquake Geotechnical Engineering, May 28-30, 2012, Taormina, Italy.
- [12] **Vazouras, P.**, Karamanos, S. A., and Dakoulas, P., "Finite Element Analysis of Buried Steel Pipelines Under Strike-Slip Fault Displacements", *22nd International Ocean and Polar Engineering Conference*, ISOPE12, Rhodes, Greece, June 2012.
- [13] Demofonti, G., Ferino, J., Karamanos, S. A., **Vazouras, P.**, and Dakoulas, P., "An integrated experimental – numerical approach to predict strain demand for buried steel pipelines in geohazardous areas", *Rio Pipeline Conference & Exposition*, Rio, Brazil, September 2013.
- [14] **Βαζούρας, Π.**, Ντακούλας, Π., Καραμάνος, Σ. (2014), Συμπεριφορά υπόγειων χαλύβδινων αγωγών κατά τη μετατόπιση σεισμικού ρήγματος, 7^ο Πανελλήνιο Γεωτεχνικής Μηχανικής, Νοεμβρίου 2014, Αθήνα.
- [15] **Vazouras, P.**, Dakoulas, P. and Karamanos, S. A., "Structural Performance of Buried Steel Pipelines Crossing Strike-Slip Faults.", *International Pipeline Conference*, IPC2014-33323, Calgary, Alberta, Canada, September, 2014.

- [16] **Vazouras, P.**, Sarvanis, G., Dakoulas P. and Karamanos S.A. (2014), Finite element models for severe ground –induced deformations, Geohazards and Pipelines, Safety of buried steel pipelines, Delft, 2014.
- [17] **Vazouras, P.**, Sarvanis, G., Karamanos, S., Dakoulas, P. and Ferino, J. (2015) Soil – pipe interaction models for simulating the mechanical response of buried steel pipelines crossing active faults, 5th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, 25 - 27 May 2015 Crete, Greece.
- [18] **Vazouras, P.**, Karamanos, S., Dakoulas, P. (2015) Performance of buried pipeline bends, 5th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, 25 - 27 May 2015 Crete, Greece.
- [19] Sarvanis, G. C., Ferino, J., Karamanos, S. A., **Vazouras, P.**, Dakoulas, P., Mecozzi, E., and Demofonti, G., “Soil-Pipe Interaction Models for Simulating the Mechanical Response of Buried Steel Pipelines Crossing Active Faults”, *26th International Ocean and Polar Engineering Conference*, ISOPE, Rhodes, Greece, June 2016.
- [20] **Vazouras, P.**, Karamanos, S. A., “Mechanical performance of buried pipeline bends and their influence when crossing strike slip faults”, *International Conference on Natural Hazards & Infrastructure*, ICONHIC2016, Chania, Greece, June 2016.
- [21] Dakoulas, P., **Vazouras, P.**, “Seismic Assessment of a Quay Performance Wall”, *International Conference on Natural Hazards & Infrastructure*, ICONHIC2016, Chania, Greece, June 2016.
- [22] Sarvanis, G. C., Karamanos, S. A., and **Vazouras, P.**, “Soil-Pipe Interaction Models for the Simulation of Buried Steel Pipeline Behaviour Against Geohazards”, *Offshore Mechanics and Arctic Engineering Conference*, ASME, OMAE 2017, Trondheim, Norway, June 2017.
- [23] Dakoulas, P, Kallioglou, **P, Vazouras, P** (2018) Effect of foundation and backfill relative density on the seismic performance of a quay wall, 16th European Conference on Earthquake Engineering, Thessaloniki, 18-21 June, 2018.
- [24] A. Tsatsis, P. **Vazouras, P.** Dakoulas (2019), Experimental and numerical modelling of global buckling of underground pipelines due to high pressure and temperature, 2nd International Conference on Natural Hazards and Infrastructure, 23-26 June, Chania, Greece.