

CURRICULUM VITAE

Vasileios A. Drosos

Civil Engineer, PhD

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1. STUDIES

2008: **Ph.D.** in Geotechnical Earthquake Engineering, National Technical University of Athens, Greece

2003: **Master of Science** in Civil Engineering, Georgia Institute of Technology, Atlanta, USA

2001: **Diploma in Civil Engineering**, National Technical University of Athens, Greece

2. ACADEMIC EXPERIENCE

Academic Positions and Experience:

2011–today : **Technical Director** of Experimental Simulation Division (Simulation of Soil–Structure Systems), Laboratory of Soil Mechanics, NTUA (www.ssi.civil.ntua.gr)

2008–today : **Postdoctoral Researcher**, Geotechnical Department, School of Civil Engineering, NTUA

2008–2009 : **Adjunct Lecturer**, Soil–Structure Interaction & Soil Dynamics, School of Civil Engineering, NTUA

2005–today : **Main Researcher**, Numerical Investigation & Experimental Simulation of Soil–Structure Systems, Laboratory of Soil Mechanics, NTUA

2003 : **Research Assistant**, School of Civil Engineering, Georgia Institute of Technology, GA, USA

2002 : **Teaching Assistant**, School of Civil Engineering, Georgia Institute of Technology, GA, USA

Participation in Research Projects: As Researcher: 12

Presentations: In Conferences: 6

3. PROFESSIONAL EXPERIENCE

2002–today : **Geotechnical and Earthquake Engineering Consultant**
P.E. (Greece), Technical Chamber of Greece, Registration No. 90471 (the licence is valid all over the European Union, regognized by all 27 member-states)

- *Special Studies for Seismic Geotechnical Design (Buildings, Bridges, Tunnels, and Ports) against : (a) seismic shaking, and (b) faulting*
- *Estimation of Seismic Hazard and Vulnerability of Structures*
- *Design of Foundations and Retaining Structures*

Membership in Professional Associations

- Technical Chamber of Greece (TCG / TEE)
- Hellenic Society of Soil Mechanics and Geotechnical Engineering (HSSMGE / EEEEFM)
- Hellenic Society of Earthquake Engineering (HSEE / ETAM)
- Hellenic Society of Civil Engineers (HSCE / ΣΠΜΕ)
- American Society of Civil Engineers (ASCE)

Selected Major Professional (State-of-the-Art) Projects:

- Domokos ΣΓ26 Rail Bridge (Re-evaluation), 2012 : Special Design against tectonic dislocation
- *New Highway Elefsina–Corinthos–Patras–Pyrgos–Tsakona (Southern Greece), 2009-2010* : Special Design against Seismic Faulting of 7 road bridges and 5 lane–cover tunnels
- *Port of Piraeus (Athens, Greece), 2009-2010* : Seismic Design of harbour quay walls
- *Development of 8 urban sites (Athens, Greece), 2009* : Design and Supervision of the geotechnical investigation program, soil physical and mechanical properties Assessment and Design of temporary retaining structures
- *Residence of the Swedish Ambassador (Athens, Greece), 2009* : Seismic hazard and risk assessment and 3-D dynamic analyses of the building (in time–domain)
- *Port of Thessaloniki (Northern Greece), 2008-2009* : Seismic Design of harbour quay walls
- *Al Gurm Resort Development (Abu Dhabi, U.A.E.), 2007* : Pile Design against liquefaction and lateral spreading
- *Preliminary design of the New Igoumenitsa–Ioannina RR (Western Greece), 2007* : Geotechnical Design and soil physical and mechanical properties Assessment
- *New Port of Igoumenitsa, Phase II, (Western Greece), 2005* : Seismic Design of harbour quay walls
- *Kamena Vourla Bypass Highway (Central Greece), 2004-2005* : Special Design against Strong Seismic Shaking of 5 cut-and-cover tunnels
- *Attiki Odos Freeway (Athens, Greece), 2004* : Seismic Vulnerability Assessment of 60 km freeway infrastructures (bridges, bored and cut-and-cover tunnels, embankments)
- *Shaft of the Opening Ceremony, 2004 Olympic Games (Athens, Greece), 2003* : Temporary excavation support of 25 m deep shaft, under extremely tight deadlines
- *Application of seismic isolation in a typical residence building in Athens (Greece), 2003* : Design of the seismic isolation and 3-D dynamic Analysis of the building (in time–domain)
- *Design of the New Athens–Thessaloniki RR (Central Greece), 2002* : Geotechnical Design of the embankments, soil physical and mechanical properties Assessment, 1-D nonlinear analyses of the soil seismic response and liquefaction risk Assessment
- *Evaluation of the effect of the New Metro tunnel on the seismic safety of the historic church of Kapnikarea (Athens, Greece), 2002* : 2-D dynamic Analysis of the monument and the tunnel (in time–domain)

4. PUBLICATIONS

- Publications in Refereed Journals: 10 (8 published, 1 accepted, 1 submitted)
- Publications in Conference Proceedings: 29
- Other Publications (non–refereed): 2

Theses & Dissertations

- I. **Drosos V.** (2008) *Inelastic Dynamic Soil Response and Soil–Structure Interaction*. Doctoral Dissertation, School of Civil Engineering, NTUA, Athens, Greece
- II. **Drosos V.** (2003) *Synthesis of earthquake ground motions for the New Madrid seismic zone*, M.Sc. Thesis, School of Civil Engineering, Georgia Institute of Technology, Atlanta, USA
- III. **Drosos V.** (2001) *Numerical Simulation of Seismic Response of Gravity Walls*. Diploma Thesis, School of Civil Engineering, NTUA, Athens, Greece

Publications in Refereed Journals:

1. **Drosos V., Anastasopoulos I.** (2013) “Experimental Investigation of the Seismic Response of Classical Temple Columns”, *Bulletin of Earthquake Engineering* (submitted for possible publication)

2. Zafeirakos A., Gerolymos N., **Drosos V.** (2013) "Incremental dynamic analysis of caisson–pier interaction", *Soil Dynamics and Earthquake Engineering*, (<http://dx.doi.org/10.1016/j.soildyn.2013.01.021i>)
3. Anastasopoulos I., Loli M., Georgarakos T., **Drosos V.** (2013) "Shaking Table Testing of Rocking—Isolated Bridge Pier on Sand", *Journal of Earthquake Engineering*, Vol. 17, No. 1, pp.1-32
4. **Drosos V.**, Georgarakos P., Loli M., Zarzouras O., Anastasopoulos I., Gazetas G. (2012), "Seismic Soil–Foundation–Structure Interaction with Mobilization of Bearing Capacity: An Experimental Study", *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 138, No. 11, pp.1369-1386
5. **Drosos V.**, Gerolymos N., Gazetas G. (2012), "Inelastic Model for Soil Amplification: Calibration, Comparisons, Validation", *Soil Dynamics & Earthquake Engineering*, Vol. 42, pp. 255-274
6. Anastasopoulos I., Georgarakos P., Georgiannou V., **Drosos V.**, Kourkoulis R. (2010), "Seismic Performance of Bar-Mat Reinforced-Soil Retaining Wall: Shaking Table Testing versus Numerical Analysis with Modified Kinematic Hardening Constitutive Model", *Soil Dynamics & Earthquake Engineering*, Vol. 30, pp. 1089-1105
7. Gerolymos N., **Drosos V.**, Gazetas G. (2009), "Seismic response of single-column bent on pile: evidence of beneficial role of pile and soil inelasticity", *Bulletin of Earthquake Engineering*, Vol. 7, No.2, pp. 547-573
8. Anastasopoulos I., Gazetas G., **Drosos V.**, Georgarakos P., Kourkoulis R. (2008), "Design of bridges against large tectonic deformation", *Earthquake Engineering and Engineering Vibration*, Vol. 7, No. 4, pp. 345-368
9. Anastasopoulos I., Gerolymos N., **Drosos V.**, Kourkoulis R., Georgarakos P., Gazetas G. (2008), "Behaviour of Deep Immersed Tunnel under Combined Major Fault Rupture and Strong Seismic Shaking", *Bulletin of Earthquake Engineering*, Vol. 6, No.2, pp. 213-239
10. Anastasopoulos I., Gerolymos N., **Drosos V.**, Kourkoulis R., Georgarakos P., Gazetas G. (2007), "Nonlinear Response of Deep Immersed Tunnel to Strong Seismic Shaking", *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, Vol. 133, No. 9, pp. 1067-1090

Publications in Conference Proceedings:

11. Anastasopoulos I., **Drosos V.**, Antonaki N., Rontogianni A. (2012), "The Role of Soil–Foundation–Structure Interaction on the Seismic Performance of an Existing 3-storey Building: Shaking Table Testing", *15th Int. Conf. on Earthquake Engineering*, Lisbon, Portugal, September 24-28, 2012, Paper 4865
12. Manoledaki A.A., **Drosos V.**, Anastasopoulos I., Vintzileou E., Gazetas G. (2012), "Experimental assessment of the seismic response of three-leaf stone masonry walls, with due consideration to soil–structure interaction", *15th Int. Conf. on Earthquake Engineering*, Lisbon, Portugal, September 24-28, 2012, Paper 4309
13. **Drosos V.**, Georgarakos T., Loli M., Anastasopoulos I., Gazetas G. (2012), "Nonlinear soil–foundation interaction: an experimental study on sand", *2nd International Conference on Performance-Based Design in Earthquake Geotechnical Engineering*, Taormina, Italy, May 28–30, 2012
14. Anastasopoulos I., Loli M., **Drosos V.**, Gazetas G. (2011), "Cyclic Pushover and Shake Table Testing of Bridge Pier with Foundation Uplifting and Soil Yielding", *Proc. 4th Japan–Greece Workshop on Seismic Design of Foundations, Innovations in Seismic Design, and Protection of Cultural Heritage*, Kobe, Japan, 6–7 October
15. **Drosos V.**, Gerolymos N., Gazetas G. (2011), "Seismic Response of Bridge Pile–Columns", *Proc., 5th International Conference on Earthquake Geotechnical Engineering*, Santiago, Chile, 10-13 January
16. **Drosos V.**, Gerolymos N., Gazetas G. (2010), "Seismic Response of Pile–Columns: Numerical Investigation", *Proc., 6th Hellenic Conference on Geotechnical and Geoenvironmental Engineering*, Volos, Greece, 29 September-1 October
17. Anastasopoulos I., **Drosos V.**, Georgarakos T., Gazetas G. (2010), "Experimental Validation of Bridge Pier Seismic Design Employing Soil Ductility", *Proc., 6th Hellenic Conference on Geotechnical and Geoenvironmental Engineering*, Volos, Greece, 29 September-1 October

18. **Drosos V.**, Gelagoti F., Kourkoulis R., Anastasopoulos I., Gazetas G. (2010), "New Thessaloniki Commercial Port: Non-linear seismic Analysis of the Quay Wall", *Proc., 6th Hellenic Conference on Geotechnical and Geoenvironmental Engineering*, Volos, Greece, 29 September-1 October
19. **Drosos V.**, Gerolymos N., Gazetas G. (2009), "Seismic response of bridge pile-columns", *Proc., 3rd Greece–Japan Workshop: Seismic Design, Observation, Retrofit of Foundations*, Santorini 22–23 September, pp. 51-70
20. Anastasopoulos I., Kourkoulis R., **Drosos V.**, Georgarakos P., Gazetas G. (2009), "Methodology for Design Analysis of Bridges against an Emerging Fault Rupture", *Proc., 3rd Greece–Japan Workshop: Seismic Design, Observation, Retrofit of Foundations*, Santorini 22–23 September, pp. 375-392
21. Anastasopoulos I., Georgarakos P., **Drosos V.**, Giannakos S., Gazetas G. (2009), "Towards a Reversal of Seismic Capacity Design: Part B. Shaking-Table Testing of Bridge Pier–Foundation System", *Proc., 3rd Greece–Japan Workshop: Seismic Design, Observation, Retrofit of Foundations*, Santorini 22–23 September, pp. 407-418
22. Anastasopoulos I., Georgarakos P., **Drosos V.**, Gazetas G. (2008), "Fault Rupture–Foundation Interaction: Physical Modeling at the New Experimental Facility of NTUA", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1847
23. **Drosos V.**, Gerolymos N., Gazetas G. (2008), "Inelastic Dynamic Soil Response: Verification of New Constitutive Model", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1849
24. **Drosos V.**, Gerolymos N., Gazetas G. (2008), "Dynamics of Laterally Loaded Pile: Verification of New Method", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1947
25. Anastasopoulos I., **Drosos V.**, Georgarakos P., Kourkoulis R., Gazetas G. (2008), "Design of Rail and Road Bridges against Seismic Faulting. Part 1: Foundation", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1954
26. Anastasopoulos I., **Drosos V.**, Georgarakos P., Kourkoulis R., Gazetas G. (2008), "Design of Rail and Road Bridges against Seismic Faulting. Part 2: Superstructure", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1955
27. Anastasopoulos I., Gerolymos N., **Drosos V.**, Kourkoulis R., Georgarakos P., Gazetas G. (2008), "Rion–Antirion Immersed Tunnel: Design for Combined Faulting Deformation and Subsequent Seismic Shaking", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1976
28. Gerolymos N., **Drosos V.**, Gazetas G. (2008), "Seismic Response of Pile–Columns: Soil and Pile Inelasticity", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1983
29. Georgarakos P., **Drosos V.**, Anastasopoulos I., Gazetas G. (2008), "Experimental Verification of the Seismic Response of Reinforced Soil Walls in the New Shaking Table of the NTUA Soil Mechanics Laboratory", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 1996
30. Gazetas G., Anastasopoulos I., Georgarakos P., **Drosos V.** (2008), "NTUA Soil Mechanics Laboratory: New Division for the Simulation of the Seismic Response of Soil–Structure Systems", *Proc., 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology*, Athens, Greece, 5-7 November, Paper no. 2023
31. Gazetas G., Anastasopoulos I., Gerolymos N., **Drosos V.**, Kourkoulis R., Georgarakos P. (2007), "Deep Immersed Tunnel under Combined Major Fault Rupture Deformation and Subsequent Strong Seismic Shaking", *Proc., 2nd Japan-Greece Workshop on Seismic Design, Observation, and Retrofit of Foundations*, Tokyo, Japan, 3–4 April
32. **Drosos V.**, Gerolymos N., Gazetas G. (2007), "Calibration and verification of nonlinear wave propagation method", *Proc., 4th International Conference on Earthquake Geotechnical Engineering*, Thessaloniki, Greece, 25–28 June, Paper no. 1564
33. Anastasopoulos I., Gerolymos N., **Drosos V.**, Kourkoulis R., Georgarakos P., Gazetas G. (2007), "Behaviour of Deep Immersed Tunnel under Major Fault Rupture Deformation", *Proc., 4th International Conference on Earthquake Geotechnical Engineering*, Thessaloniki, Greece, 25–28 June, Paper no. 1582

34. **Drosos V.**, Gerolymos N., Gazetas G. (2006), "Non-linear Analysis of Laterally Loaded Piles: Calibration of a new method", *Proc., 10th International Conference on Piling and Deep Foundations*, Amsterdam, Netherlands
35. **Drosos V.**, Gerolymos N., Gazetas G. (2006), "Laterally Loaded Pile in Soft Organic Soil: Analysis of Full-Scale Experiments", *Proc., 5th Hellenic Conference on Geotechnical and Geoenvironmental Engineering*, Xanthi, Greece, 31 May-2 June
36. Gerolymos N., **Drosos V.**, Gazetas G. (2006), "The Effect of Inclined Piles on the Seismic Response of Structures: Case Histories and Numerical Analyses", *Proc., 5th Hellenic Conference on Geotechnical and Geoenvironmental Engineering*, Xanthi, Greece, 31 May-2 June
37. Kourkoulis R., **Drosos V.**, Gazetas G. (2006), "Evaluation of Landslides and Records Destructiveness of the M6.8 Mid-Niigata 2004 Earthquake", *Proc., 5th Hellenic Conference on Geotechnical and Geoenvironmental Engineering*, Xanthi, Greece, 31 May-2 June
38. Anastasopoulos I., Gerolymos N., **Drosos V.**, Georgarakos P., Kourkoulis R., Gazetas G. (2006), "Dynamic Analysis and Seismic Design of Immersed Tunnel: A Parametric Study", *Proc., 5th Hellenic Conference on Geotechnical and Geoenvironmental Engineering*, Xanthi, Greece, 31 May-2 June
39. **Drosos V.**, Kourkoulis R. (2004), "Influence of Deep Soft Soil Sediments on the one-dimensional Soil Response due to Seismic Shaking", *Proc., 16th European Conference of Young Geotechnical Engineers*, Vienna, Austria

Other Publications (non-refereed):

33. Anastasopoulos I., Georgarakos P., **Drosos V.**, Gazetas G. (2010), "NTUA Soil Mechanics Laboratory: New Laboratory for Experimental Simulation of Soil-Structure Systems", *Hellenic Society of Civil Engineers Magazine*, Issues 380-381, March-April
34. Gazetas G., Anastasopoulos I., **Drosos V.**, Georgarakos P., Kourkoulis R. (2007), "Seismic Behaviour of Reinforced-Earth Retaining Walls: Experimental Investigation on the New Shaking Table, NTUA", *Proc., Seminar on Geotechnical Applications of Geosynthetics*, Athens, Greece, 11 January

5. RESEARCH EXPERIENCE

Participation in Research Projects: As Researcher: 12

- 2011–today : **GI-PIPE** : Safety of buried steel pipelines under ground-induced deformations.
Funding : EC / Research Fund for Coal and Steel
- 2010–today : **PERPETUATE** : Performance-based approach to earthquake protection of cultural heritage in European and Mediterranean countries.
Funding : EU / EC
- 2009–today : **SERIES** : Seismic engineering research infrastructures for european synergies.
Funding : EU / EC
- 2009– today : **DARE** : Soil Foundation Structure Systems Beyond Conventional Seismic Failure Thresholds : Application to New or Existing Structures and Monuments.
Funding : EU / EC
- 2005–2008 : **AKMON** : Physical modelling of seismic excitation and tectonic rupture effects on geotechnical, structural, and infrastructure systems.
Funding : Greek General Secretariat for Research and Technology
- 2004–2007 : **Railway bridge on top of active seismogenic fault**: investigation, analysis methods and development of a new standard design methodology.
Funding : Greek National Railways S.A.
- 2003–2006 : **TURNOUTS** : New concepts for turnouts in urban rail transit infrastructure.

- Funding : EU / EC
- 2003–2006 : **ASPROGE** : Seismic analysis and design of bridge systems.
Funding : Greek General Secretariat for Research and Technology
- 2003–2006 : **X-SOILS** : Foundation design on seismically vulnerable soils: risk assessment, design, retrofit.
Funding : Greek General Secretariat for Research and Technology
- 2002–2006 : **QUAKER** : Fault-Rupture and Strong Shaking Effects on the Safety of Composite Foundations and Pipeline Systems: Quantification and Reduction of Seismic Risk through the Application of Advanced Geotechnical Engineering Techniques.
Funding : EU / EC
- 2003–2004 : **Lefkada’s Earthquake, 14-8-2003** : Analysis and interpretation of the port facilities failure and of the numerous landslides.
Funding : *OASP*
- 2003–2004 : **Rion–Antirion Underwater Railroad Connection** : Analysis of the immersed tunnel seismic response, dynamic analysis of the soil–tunnel interaction, and evaluation of the effect of a possible seismic fault on the tunnel.
Funding : Greek National Railways S.A.

6. DEVELOPMENT OF EXPERIMENTAL FACILITIES

- 2006–today : **Design and Construction of Laboratory Equipment**
1. Fault Rupture Box
 2. Sand Raining System
 3. Experimental Strong Box
 4. Laminar Box
 5. Pushover Apparatus
 6. Small Shaking Table for educational purposes
- 2008–today : **Certification of the New Laboratory with EN–ISO 9001 : 2008 (TÜV Hellas)** for “Simulation of seismic response of structures and soil–structure systems”
- 2006–2007 : **Installation of Shaking Table** and Starting of the Operation of the New Laboratory
- 2005–2006 : **Transformation of a Storage Space to Laboratory**

7. HONORS AND AWARDS

- 2004–2007 : **“Hellenic Scholarships Foundation” Bursary** to postgraduate studies in “Geomechanics”
- 2004 : **National Delegate for Greece, 16th European Conf. of Young Geotechnical Engineers**
- 2004 : **“Technical Chamber of Greece” Prize** for the Diploma Thesis “Numerical Simulation of the Seismic Response of Gravity Retaining Walls” (2001)
- 2003 : **“James Lai” Prize** for distinguished application in postgraduate studies of Georgia Institute of Technology
- 2003 : **“AHEPA” Prize** for application in postgraduate studies
- 2002 : **“State Scholarships Foundation” Prize** for best diploma grade in School of Civil Engineering, NTUA
- 2001 : **“Ch. Chrisovergi” Prize** for best diploma grade in School of Civil Engineering, NTUA
- 1999 : **“Technical Chamber of Greece” Prize** for application to studies
- 1999, 1997 : **“State Scholarships Foundation” Prize** for application to studies
- 1996 : **“State Scholarships Foundation” Prize** for admission to the School of Civil Engineering, NTUA
- 1993 : **“Hellenic Mathematical Society” Prize** for distinction in hellenic mathematical competition

