

**Ioannis N. Psycharis, Ph.D.**  
**Associate Professor of Structural and Earthquake Engineering**

**AREAS OF SPECIALIZATION AND FIELDS OF INTEREST**

- Seismic response of modern structures, historical buildings and classical monuments, analytically and experimentally.
- Repairing and strengthening of structures.
- Seismic isolation.
- Innovative methods in seismic design.
- Soil-structure interaction.
- Engineering seismology.

**EDUCATIONAL BACKGROUND**

- Ph.D., Civil Engineering (Structural Dynamics and Earthquake Engineering), California Institute of Technology, Pasadena, California, U.S.A., August 1981.
- M.Sc., Civil Engineering, California Institute of Technology, Pasadena, California, U.S.A., June 1977.
- Diploma in Civil Engineering (5-year program), National Technical University of Athens, Greece, June 1976.

**ACADEMIC ACTIVITY**

- Member of the Faculty of the School of Civil Engineering, National Technical University of Athens, Greece, since 1987. Current position: Associate Professor.
- Collaborating Professor, Greek Open University, 2004-today. He has taught the course: Engineering Seismology and Soil Dynamics (graduate).
- Part-time Professor, Department of Technological Applications, Technological Educational Institute of Athens, acad. years 1984-85 and 1986-87.
- Post-Doctoral Research Fellow, California Institute of Technology, 1981-1982.
- Courses that he has taught: Earthquake Engineering (undergraduate), Engineering Seismology (undergraduate), Special Topics on Earthquake Engineering (graduate).
- Supervisor of 5 (five) Ph.D. theses (under preparation) and member of the advisory committee for more than fifteen Ph.D. theses.
- Supervisor of more than 80 (eighty) diploma and master theses.

**RESEARCH ACTIVITY**

- Around 80 papers in refereed journals and international and national conferences on topics related to Earthquake Engineering.
- More than 150 citations by third parties (source: Google scholar).
- Research projects:
  - Responsible for 2 (two) European (FP7) projects (under execution) and 10 (ten) national projects (most of them concluded).
  - Member of the research team of 3 (three) European projects (1 under execution and 2 concluded) and 5 (five) national projects (concluded).

- Reviewer of scientific papers for the following international journals:
  - Earthquake Engineering and Structural Dynamics
  - Journal of Structural Engineering, ASCE
  - Journal of Engineering Mechanics, ASCE
  - Earthquake Spectra, EERI
  - Soil Dynamics and Earthquake Engineering
  - International Journal of Solids and Structures
  - Structural Engineering and Mechanics
  - International Journal of Architectural Heritage
  - Journal of Cultural Heritage
  - Strain
  - Mechanics Research Communications
  - Journal of Sound and Vibration
  - Structural Engineering Review
  - Computing Systems in Engineering
  - Computers and Structures
  - Mathematical Problems in Engineering.
- Member of the Organizing Committee of National Conferences on Earthquake Engineering.
- Member of scientific committees of the Technical Chamber of Greece.

#### **PROFESSIONAL EXPERIENCE**

- Deputy design leader for the Independent Engineer of the projects: Ionia Odos and Central Greece Motorway (E65).
- Collaboration with design offices since 1984 for structural consulting and design of a variety of projects including:
  - Design of more than 70 bridges
  - Design of buildings, including two railway stations
  - Design of highway tunnels
  - Design of various highway-related structures as retaining walls, cut&cover, hydraulic works
- Employed by the Greek Ministry of Public Works, Department for the Design of Civil Engineering Works in Highways, 1984-1987.

#### **PROFESSIONAL SOCIETIES MEMBERSHIP**

- Member of the American Society of Civil Engineers (ASCE).
- Member of the Structural Engineering Institute (SEI) of ASCE.
- Member of the Earthquake Engineering Research Institute (EERI).
- Founding Member and Executive Board Member of the Hellenic Society of Earthquake Engineering.
- National Representative of Greece in the International Association for Earthquake Engineering.
- Member of the Technical Chamber of Greece.
- Member of the Greek Association of Civil Engineers.

## RECENT PUBLICATIONS

### *Papers in refereed journals*

- Psycharis, I. N., Papastamatiou, D. Y. and Alexandris, A., "Parametric Investigation of the Stability of Classical Columns under Harmonic and Earthquake Excitations", *Earthquake Engineering and Structural Dynamics*, Vol. 29, pp. 1093-1109, 2000.
- Mylonakis, G., Papastamatiou, D., Psycharis, J. and Mahmoud, K., "Simplified Modeling of Bridge Response on Soft Soil to Nonuniform Seismic Excitation", *Journal of Bridge Engineering*, ASCE, Vol. 6, No. 6, pp. 587-597, 2001.
- Mouzakis, H., Psycharis, I. N., Papastamatiou, D. Y., Carydis, P. G., Papantonopoulos, C. and Zambas, C., "Experimental investigation of the earthquake response of a model of a marble classical column", *Earthquake Engineering and Structural Dynamics*, Vol. 31, pp. 1681-1698, 2002.
- Papantonopoulos, C., Psycharis, I. N., Papastamatiou, D. Y., Lemos, J. V. and Mouzakis, H., "Numerical Prediction of the Earthquake Response of Classical Columns Using the Distinct Element Method", *Earthquake Engineering and Structural Dynamics*, Vol. 31, pp. 1699-1717, 2002.
- Psycharis, I. N., Lemos, J. V., Papastamatiou, D. Y., Zambas, C. and Papantonopoulos, C., "Numerical Study of the Seismic Behaviour of a Part of the Parthenon Pronaos", *Earthquake Engineering and Structural Dynamics*, Vol.32, pp. 2063-2084, 2003.
- Psycharis, I. N. And Mageirou, G. E. "Investigation Of The Seismic Behaviour of Bridges with Elastomeric Bearings and Seismic Stoppers", *Technika Chronika, T.E.E.*, No. 2/2004, Series I, pp. 79-95 (in Greek).
- Psycharis, I. N., "A Probe into the Seismic History of Athens, Greece from the Current State of a Classical Monument", *Earthquake Spectra*, Vol. 23, No. 2, pp. 393-415, 2007.
- Psycharis, I.N., "Investigation of the Dynamic Response of Rigid Footings on Tensionless Winkler Foundation", *Soil Dynamics and Earthquake Engineering*, Vol. 28, pp. 577-591, 2008.
- Psycharis, I. N., Mouzakis, H. P., Miltiadou, A., Pavlopoulou, E. P., Taflampas, I. M., "Investigation of the seismic response of a Byzantine church and evaluation of the effectiveness of proposed interventions", *Earthquake Spectra*, Vol. 26, No. 2, pp. 473-497, 2010.
- Voyagaki, E., Mylonakis, G., Psycharis, I.N., "A shift property for the dynamic response of rigid-plastic systems", *Earthquake Engineering and Structural Dynamics*, Vol. 40, pp. 847-866, 2011.
- Ambraseys, N. and Psycharis, I. N., "Earthquake stability of columns and statues", *Journal of Earthquake Engineering*, Vol. 15, pp. 685-710, 2011.
- Stefanou, I., Psycharis, I. Georgopoulos, I.-O., "Dynamic response of reinforced masonry columns in classical monuments", *Constructions and Building Materials*, Special Issue "Masonry Research and Practice" (in print).
- Voyagaki, E., Mylonakis, G., Psycharis, I.N., "Dynamic analysis of yielding systems by excitation shift", *Journal of Engineering Mechanics*, ASCE (submitted).
- Voyagaki, E., Mylonakis, G., Psycharis, I.N., "Rigid Block Sliding to Idealized Acceleration Pulses", *Journal of Engineering Mechanics*, ASCE (submitted).

### *Papers in Conference Proceedings*

- Psycharis, I., Papastamatiou, D., Carydis, P., Papantonopoulos, K., Alexandris, A., Mouzakis, H., Zambas, K. and Lemos, J. V., "Numerical and Experimental Investigation of the Seismic Behaviour of Classical monuments", 2<sup>nd</sup> Hellenic Conference on Earthquake Engineering and Engineering Seismology, Thessaloniki, 28-30 Nov. 2001, Vol. A, pp. 277-286 (in Greek).
- Psycharis, I., Sygros, K., Mimoglou, P. and Taflambas, I., "Parametric Investigation of the Toppling of Rigid Bodies under Harmonic and Seismic Excitation", 2<sup>nd</sup> Hellenic Conference on

- Earthquake Engineering and Engineering Seismology, Thessaloniki, 28-30 Nov. 2001, Vol. A, pp. 267-276 (in Greek).
- Alexandris, A., Psycharis, I. And Protopapa, E., "The Collapse of the Temple of Zeus in Olympia – Back Analysis with the Distinct Element Method", 2<sup>nd</sup> Hellenic Conference on Earthquake Engineering and Engineering Seismology, Thessaloniki, 28-30 Nov. 2001, Vol. A, pp. 297-306 (in Greek).
- Vougioukas, E. and Psycharis, I., "Experimental Investigation of the Inelastic Behaviour Buried Pipelines for Large Ground Displacements", 2<sup>nd</sup> Hellenic Conference on Earthquake Engineering and Engineering Seismology, Thessaloniki, 28-30 Nov. 2001, Vol. B, pp. 323-330 (in Greek).
- Psycharis, I. N., Syngros, C., Mimoglou, P. and Taflambas, I., "Parametric Investigation Of The Overturning Of Rigid Blocks Under Dynamic Loading", 12<sup>th</sup> European Conference on Earthquake Engineering, London, Sept. 9-13, 2002.
- Psycharis, I. N. and Mageirou, G. E., "Parametric Investigation of the Inelastic Seismic Response of Bridges With Elastomeric Bearings Combined With Stoppers", Proceedings of the fib symposium: "Concrete Structures in Seismic Regions", Athens, 6-8 May 2003.
- Protopapa, E., Alexandris, A. and Psycharis, I., "Collapse mechanisms of masonry buildings derived by the distinct element method", 13<sup>th</sup> WCEE, Paper No. 548, Vancouver, Canada, 1-6 August 2004.
- Psycharis, I.N., "Dynamic Response of a Part of the Temple of Olympios Zeus (Olympieion) in Athens, Greece to Harmonic and Earthquake Excitations", 3<sup>rd</sup> European Conference on Structural Control (3ECSC), Vienna, Austria, 12-15 July 2004.
- Psycharis, I.N., "Seismic Response of Classical Monuments with Fractured Structural Elements, ECF16 – Symposium on "Fracture and Failure Natural Building Stones – Application in the Restoration of Ancient Monuments", Alexandroupolis, Greece, 3-7 July 2006 (invited paper).
- Psycharis, I. N., Mouzakis, H. P. and Carydis, P. G., "Experimental Investigation of the Seismic Behaviour of Prefabricated RC Structures", 2<sup>nd</sup> International fib Congress, Naples, Italy, 5-8 June 2006.
- Psycharis, I.N. and Arachovitis, N.I., "Comparison between alternative applications of the pushover analysis and other simplified methods for the estimation of the nonlinear response of structures ", 15<sup>th</sup> Hellenic Conference on RC Structures, Alexandroupolis, Greece, 25-27 Oct. 2006 (in Greek).
- Psycharis, I.N., Mouzakis, H.P., Carydis, P.G. and Kremmyda, G.D., "Experimental results on the seismic response of connections of linear precast R.C. members", 15<sup>th</sup> Hellenic Conference on RC Structures, Alexandroupolis, Greece, 25-27 Oct. 2006 (in Greek).
- Psycharis, I. N., "Parametric Investigation of the Rocking of Footings under Harmonic Excitation", 4<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, Thessaloniki, Greece, 25-28 June 2007.
- Psycharis, I.N., "Using Classical Monuments for the Assessment of Past Earthquake Scenarios", 4<sup>th</sup> International Conference on Earthquake Geotechnical Engineering – Workshop on Geotechnical Earthquake Engineering Related to Monuments and Historical Centers, Thessaloniki, Greece, June 25-28, 2007.
- Psycharis, I. N., Mouzakis, H. P., Carydis, P. G., Tsoukantas, S. G., Kremmyda, G. D., "Experimental Results of a Full-Scale Investigation on the Seismic Behaviour of Precast RC Structures", 3<sup>rd</sup> International Conference on Structural Engineering, Mechanics and Computation (SEMC 2007), Cape Town, S. Africa, 10-12 Sept. 2007.
- Psycharis, I., Mouzakis, H., Pavlopoulou, E., Miltiadou, A., "Investigation of the Seismic Response of a Byzantine Church – Comparison with the Existing Damage", International Symposium on Studies on Historical Heritage, Antalya, Turkey, 17-21 Sept. 2007.
- Voyagaki, E., Mylonakis, G., Psycharis, I., "Response of Geo-Structures to Near-Fault Pulses: Closed-Form Solutions", 4<sup>th</sup> Dicennial Geotechnical Earthquake Engineering and Soil Dynamics Conference, ASCE, Sacramento, California, 18-22 May 2008.

- Psycharis, I., "Overturning of Rigid Blocks and Spinal Columns", International Symposium on the Protection of Museum Artifacts from Earthquakes, Athens, Greece, 2-3 June 2008.
- Taflampas, I., Psycharis, I.N., "Investigation of the effect of the ground motion characteristics on the  $R_y-\mu$  relation for the inelastic response of SDOF structures", 14th World Conference on Earthquake Engineering, Beijing, China, 12-17 Oct. 2008.
- Voyagaki, E., Mylonakis, G., Psycharis, I.N., "Response of sliding structures to near-fault pulses: numerical and analytical solutions", 14th World Conference on Earthquake Engineering, Beijing, China, 12-17 Oct. 2008.
- Dasiou, M.-E., Psycharis, I. And Vayas I., "Analysis of the seismic response of columns and colonnades of classical temples", 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology, Athens, 5-7 Nov. 2008 (in Greek).
- Mouzakis, H., Dasiou, M.-E., Psycharis, I., Papantonopoulos, C., Vayas, I., "Experimental investigation of columns and colonnades of classical temples", 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology, Athens, 5-7 Nov. 2008 (in Greek).
- Psycharis, I., Tasiouli, K., "Parametric investigation of the effect of the base motion characteristics to the response of bridges with seismic isolation", 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology, Athens, 5-7 Nov. 2008 (in Greek).
- Psycharis, I., Mouzakis, H., Pavlopoulou E., Miltiadou, A., Taflampas, I., "Analysis of the seismic response of a Byzantine Church before and after the interventions", 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology, Athens, 5-7 Nov. 2008 (in Greek).
- Taflampas, I., Psycharis, I., "Investigation of the effect of the base motion characteristics to the inelastic response of DSOF structures", 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology, Athens, 5-7 Nov. 2008 (in Greek).
- Voyagaki, E., Mylonakis, G., Psycharis, I. "Sliding of rigid blocks on inclined surfaces for idealized pulses", 3rd Hellenic Conference on Earthquake Engineering and Engineering Seismology, Athens, 5-7 Nov. 2008 (in Greek).
- Psycharis, I.N., Drougas, A.E., Dasiou, M.-E., "Seismic Behaviour of the Walls of the Parthenon - A Numerical Study", COMPDYN 2009, Rhodes, 22-24 June 2009.
- Dasiou, M.E., Mouzakis, H.P., Psycharis, I.N., Papantonopoulos, C., Vayas, I., "Experimental investigation of the seismic response of parts of ancient temples", Prohitech Conference, Rome, 21-24 June 2009.
- Dasiou, M.E., Psycharis, I.N., Vayas, I., "Verification of numerical models used for the analysis of ancient temples", Prohitech Conference, Rome, 21-24 June 2009.
- Dasiou, M.E., Psycharis, I.N., Vayas, I., "Numerical investigation of the seismic response of Parthenon, Greece", Prohitech Conference, Rome, 21-24 June 2009.
- Psycharis, I.N., Mouzakis, H.P., Miltiadou, A., Pavlopoulou, E.P., Taflampas, I.M., "Estimation of the seismic response of historical structures and evaluation of interventions", 3rd Greece-Japan Workshop, Santorini, 22-23 Sept. 2009.
- Toumbakari, E.-E. and Psycharis, I. N., "Parametric investigation of the seismic response of a column of the Aphrodite Temple in Amathus, Cyprus", 14th European Conference on Earthquake Engineering, Ohrid, 30 Aug. – 3 Sept. 2010.
- Psycharis, I. N., Mouzakis, H. P., Kremmyda, G. D., "Experimental investigation of the behaviour of pinned beam-to-column connections to pure shear monotonic and cyclic excitation", SERIES Workshop: "Role of Research Infrastructures in Performance-based Earthquake Engineering", Ohrid, FYROM, 2 Sept. 2010.
- Voyagaki, E., Mylonakis, G., Psycharis, I. N., "A translational theorem for yielding systems", 5th International Conference on Earthquake Geotechnical Engineering, San Diago, Chile, 10-13 Jan. 2011.
- Dasiou, M.-E., Psycharis, I.N., Vrouva, A., "Numerical investigation of the seismic behaviour of connections of ancient colonnades", COMPDYN 2011, Corfu, 25-28 May 2011.

Psycharis, I. N., Sideri, M., Taflampas, I. M., "Effect of soil conditions on the characteristics of near-field ground motions", XV European Conference on Soil Mechanics & Geotechnical Engineering, ERTC-12 Workshop on Evaluation of EC8, Athens, 11 Sep. 2011.

### ***Chapters in Books***

Psycharis I. N., "Seismic response of classical monuments with fractured structural elements", Fracture and Failure of Natural Building Stones, S. Kourkoulis (ed.), Springer, 2007.

Psycharis, I. N., Drougas, A. E., Dasiou, M.-E., "Seismic Behaviour of the Walls of the Parthenon – A Numerical Study", Computational Methods in Earthquake Engineering, M. Papadrakakis, N.D. Lagaros, M. Fragiadakis (eds.), Springer, 2010.

Psycharis, I. N., Mouzakis, H. P., Carydis, P. G., "Experimental investigation of the seismic behaviour of precast structures with pinned beam-to-column connections", Role of Research Infrastructures in Performance-based Earthquake Engineering (SERIES Workshop), M. Fardis and Z. Rakicevic (eds.), Springer, 2011.

### ***Class Notes (in Greek)***

- Notes on Earthquake Engineering.
- Notes on the Seismic Design of Bridges
- Notes on the Displacement Based Seismic Design
- Notes on the Performance-Based Seismic Design
- Notes on the Seismic Design of Dams
- Notes on the Seismic Isolation
- Notes on Engineering Seismology.