

## Marios Mavros, Ph.D., P.E.

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CONTACT INFORMATION      1 University Avenue, 2109 Aglantzia, Cyprus      | Phone +357 22892268  
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RESEARCH INTERESTS      Marios is Lecturer at the Department of Civil and Environmental Engineering at the University of Cyprus. His research interests lie at the intersection of finite element modeling, earthquake engineering, and reinforced masonry and concrete structures. Specifically, he is interested in developing and applying advanced numerical modeling techniques to improve the seismic performance of these types of structures, including the investigation of the behavior of masonry and concrete structures under various loading conditions, such as earthquakes, and the development of strategies for strengthening and retrofitting these structures to enhance their seismic resistance. In addition, he is focused on studying the effects of concrete aging on the structural response of reinforced concrete structures, including the development of models to predict the changes in material properties over time, as well as the phenomenon of creep. Ultimately, the goal of his research is to contribute to the advancement of knowledge in these areas and to help improve the resilience of our built environment against natural disasters.

EDUCATION      **University of California, San Diego**, California, USA  
*Ph.D. in Structural Engineering*      **12/2015**  
• Dissertation: "Experimental and Numerical Investigation of the Seismic Performance of Reinforced Masonry Structures," advisor: Prof. Benson Shing  
**University of California, San Diego**, California, USA  
*M.S. in Structural Engineering*      **3/2012**  
• G.P.A.: 3.98/4.00  
**National Technical University of Athens (NTUA)**, Athens, GREECE  
*Diploma in Civil Engineering*      **9/2010**  
• Thesis: "Investigation of effective length in members of diagonal braces," advisor: Prof. Charis Gantes  
• G.P.A.: 9.48/10.00 (Ranked 1<sup>st</sup>)

ACADEMIC EXPERIENCE      **University of Cyprus, Department of Civil and Environmental Engineering**, Nicosia, Cyprus  
*Lecturer*      **1/2020 - Present**  
• CEE 341 - Design of Reinforced Concrete Structures  
• CEE 400 - Earthquake Engineering  
• CEE 540 - Behavior and Design of Reinforced Concrete Structures  
• CEE 545 - Nonlinear Analysis of Structures  
*Lecturer*      **1/2020 - Present**  
**University of California, San Diego, Department of Structural Engineering**, California, USA  
*Graduate Student Researcher*      **9/2010 - 9/2015**  
• Nonlinear dynamic finite element analysis of reinforced masonry structures.  
• Constitutive modeling and element formulation for finite element analysis.  
• Full-scale shake-table testing of two multistory reinforced masonry structures.

- SE 211 - Advanced RC/PC
- SE 221 - Earthquake Engineering
- SE 201A - Advanced Structural Analysis

PROFESSIONAL  
EXPERIENCE

**Simpson Gumpertz & Heger, Waltham, Massachusetts, USA**

*Project Consultant*

9/2015 -8/2019

**Main tasks:**

- Nonlinear finite element analysis.
- Structural evaluation.
- Product development.
- Risk analysis.
- Optimization.

JOURNAL  
PUBLICATIONS

- J1. Ahmadi, Farhad; **Mavros, Marios**; Shing, Benson; Klingner, Richard; and McLean, David (2013). "Displacement-based Seismic Design for Reinforced Masonry Shear-wall Structures, Part 1: Background and Trial Application." *Journal of Earthquake Spectra*, DOI: 10.1193/120212EQS345M.
- J2. Ahmadi, Farhad; **Mavros, Marios**; Shing, Benson; Klingner, Richard; and McLean, David (2013). "Displacement-based Seismic Design for Reinforced Masonry Shear-wall Structures, Part 2: Validation with Shake-table Tests." *Journal of Earthquake Spectra*, DOI:10.1193/120212EQS344M.
- J3. Stavridis, Andreas; Ahmadi, Farhad; **Mavros, Marios**; Shing, Benson; Klingner, Richard; and McLean, David; (2015). "Shake-table Tests of a Full-scale Three-story Reinforced Masonry Shear Wall Structure." *ASCE Journal of Structural Engineering*, DOI: 10.1061/(ASCE)ST.1943-541X.0001527.
- J4. **Mavros, Marios**; Ahmadi, Farhad; Shing, Benson; Klingner, Richard; McLean, David; and Stavridis, Andreas; (2015). "Shake-table Tests of a Full-scale Two-story Shear-dominated Reinforced Masonry Wall Structure." *ASCE Journal of Structural Engineering*, DOI: 10.1061/(ASCE)ST.1943-541X.0001528.
- J5. Kottari, Alexandra; **Mavros, Marios**; Murcia-Delso, Juan; and Shing, Benson; (2017). "Interface model for bond-slip and dowel-action behavior" *ACI Structural Journal*, DOI: 114. 10.14359/51689870.
- J6. **Mavros, Marios**; Panagiotou, Marios; Koutromanos, Ioannis; Alvarez, Rodolfo; Restrepo, Jose I. (2022). "Seismic Analysis of a Modern 14-story RC Core Wall Building System Using the BTM-shell Methodology" *Earthquake Engineering and Structural Dynamics*, DOI: 10.1002/eqe.3627.
- J7. **Mavros, Marios**; Panagiotou, Marios; Koutromanos, Ioannis; Restrepo, Jose I. (2023). "Nonlinear Dynamic Seismic Analysis of a Modern Concrete Core Wall Building in Los Angeles Using the BTM-shell Methodology" *Earthquake Engineering and Structural Dynamics*, Submitted under review

CONFERENCE  
PUBLICATIONS

- C1. Stavridis, Andreas; **Mavros, Marios**; Ahmadi, Farhad; Shing, Benson; Klingner, Richard; and McLean, David. "Shake-Table testing of a 3-story, full-scale reinforced masonry wall system." In: *15<sup>th</sup> International Brick and Block Masonry Conference*, June 03-06, 2012.
- C2. **Mavros, Marios**; Ahmadi, Farhad; Shing, Benson; Klingner, Richard; and McLean, David. "Seismic Performance of a Two-Story Reinforced Masonry Building Designed

- with a Displacement-Based Method.” In: *10<sup>th</sup> National Conference on Earthquake Engineering*, July 21-25, 2014.
- C3. **Mavros, Marios**; Koutromanos, Ioannis and Shing, Benson. ”Nonlinear finite element analysis of reinforced masonry structures subjected to earthquake forces.” In: *12<sup>th</sup> North American Masonry Conference*, May 17-20, 2015.
- C4. Kottari, Alexandra; **Mavros, Marios**; Murcia-Delso, Juan; and Shing, Benson. ”Interface model for bond-slip and dowel-action behavior” In: *Engineering Mechanics Institute 2017*, June 4-7, 2017.
- C5. **Mavros, Marios**; Panagiotou, Marios; Koutromanos, Ioannis; Alvarez, Rodolfo; Restrepo, Jose I. (2021). ”Seismic Analysis of a Modern 14-story RC Core Wall Building System Using the BTM-shell Methodology ” In: *Engineering Mechanics Institute 2021*, May 25-28, 2021.
- C6. Panagiotou, Marios; Koutromanos, Ioannis; **Mavros, Marios**; Deng, Xianjue; Alvarez, Rodolfo; Restrepo, Jose I.; Murcia-Delso, Juan; Acero, Gabriel (2021). ”Nonlinear Beam-Truss Model (BTM) for Seismic Performance Evaluation of Reinforced Concrete Wall Buildings” In: *SEAOC Convention 2021*, September 22–25, 2021.
- C7. **Mavros, Marios**; Panagiotou, Marios; Koutromanos, Ioannis; Alvarez, Rodolfo; Restrepo, Jose I. (2022). ”Computational Fully Nonlinear Seismic Performance Investigation of a Modern 14-story Core Wall Building in Los Angeles” In: *12<sup>th</sup> National Conference on Earthquake Engineering 2022*, June 22 – July 1, 2022.
- C8. Koutromanos, Ioannis; **Mavros, Marios**; Panagiotou, Marios; Restrepo, Jose I; Alvarez, Rodolfo. (2022). ”Computational performance assessment and failure analysis of reinforced concrete wall buildings under seismic loads” In: *Numerical Modeling Strategies for Sustainable Concrete Structures 2022*, July 4 – July 6, 2022
- C9. **Mavros, Marios**; Panagiotou, Marios; Koutromanos, Ioannis; Restrepo, Jose I; Alvarez, Rodolfo. (2022). ”Fully Nonlinear Performance-based Seismic Analysis of a Modern RC Core Wall Building in Los Angeles Using the BTM-shell Methodology” In: *3<sup>rd</sup> European Conference on Earthquake Engineering & Seismology*, September 4 – September 9, 2022.
- C10. Panagiotou, Marios; **Mavros, Marios**; Koutromanos, Ioannis; Alvarez, Rodolfo; Restrepo, Jose I.; Acero, Gabriel; Tunick, Daniel; Kirkpatrick, Drew; Wilkerson, Ryan; Hata, Owen; Gemmil, Michael (2022). ”Evaluation of Standard Nonlinear Seismic Analysis for a Modern Concrete Core Wall Building in Los Angeles” In: *SEAOC Convention 2022*, August 31 – September 3, 2022.

## GRANTS

### University of Cyprus

- Start-up Grant 2020  
*Project title: Modeling of reinforced concrete* €50,000
- Internal Research Program 2023  
*Strengthening of Unreinforced Ashlar and Rubble Masonry Heritage Structures* €60,000

## RESEARCH SUPERVISION

### University of Cyprus

- Modeling of the Varina-Enon bridge accounting for creep phenomena MS 2022

ORGANIZED STUDENT COMPETITIONS	<p><b>University of Cyprus, Department of Civil and Environmental Engineering,</b> Nicosia, Cyprus</p> <p><i>Founder and Organizer</i> <span style="float: right;"><b>1/2022 - Present</b></span></p> <p>The competition aims to strengthen the skills of the students of the Civil and Environmental Engineering (CEE) department in areas related to their fields. Students are asked to solve a small-scale design and construction problem using knowledge they have acquired in their first 3 years of study in the CEE department in the areas of building materials, strength of materials, design and analysis of structures. A funding is secured, for the competition prizes, through industrial agencies each year.</p>
HONORS AND AWARDS	<p><b>UCLouvain</b>, 2022 Blind Prediction Competition: Flexural and Torsional Response of RC U-shaped Walls</p> <ul style="list-style-type: none"> <li>• 1<sup>st</sup> place for predicting the cyclic response of U-shaped RC wall subjected to bending and axial loads.</li> <li>• 1<sup>st</sup> place for predicting the cyclic response of U-shaped RC wall subjected to torsional and axial loads.</li> </ul> <p><b>University of California, San Diego</b>, Department of Structural Engineering</p> <ul style="list-style-type: none"> <li>• Englekirk Fellowship, 2010 - 2011</li> </ul> <p><b>Foundation of State Scholarships Greece</b></p> <ul style="list-style-type: none"> <li>• Fellowship of State Scholarships Greece, granted to the top 3 undergraduate students of each school every year, 2005-2008</li> <li>• Award of State Scholarships Greece, granted to the top undergraduate student of each school every year, 2005-2008</li> </ul> <p><b>National Technical University of Athens</b></p> <ul style="list-style-type: none"> <li>• Mathematics Award "Christos Papakyriakou", Mathematics Department of National Technical University of Athens, 2005 and 2006</li> <li>• Mathematics Award "Nikolaou Kritikou", Mathematics Department of National Technical University of Athens, 2006</li> </ul> <p><b>A.G. Leventis Foundation</b></p> <ul style="list-style-type: none"> <li>• A.G. Leventis Foundation educational grant, 2010 - 2013</li> </ul> <p><b>Other</b></p> <ul style="list-style-type: none"> <li>• Representative of Cyprus in the International Physics Olympiad in Taiwan, Selected at regional and then national level, 2003</li> <li>• Silver Medal, Pan Cyprian Mathematical Olympiad, 2002</li> </ul>
REVIEWER FOR JOURNALS	<ul style="list-style-type: none"> <li>• Earthquake Engineering and Structural Dynamics <span style="float: right;"><i>2020 - Present</i></span></li> <li>• Bulletin of Earthquake Engineering <span style="float: right;"><i>2020 - Present</i></span></li> <li>• Journal of Structural Engineering <span style="float: right;"><i>2017 - Present</i></span></li> </ul>
PROFESSIONAL MEMBERSHIP AND LICENSE	<ul style="list-style-type: none"> <li>• Cyprus Scientific and Technical Chamber (ETEK) <span style="float: right;"><i>2021 - Present</i></span></li> <li>• Cyprus Association of Civil Engineers (CYACE) <span style="float: right;"><i>2021 - Present</i></span></li> <li>• Professional Civil Engineer, California, License Number: 90497 <span style="float: right;"><i>2019 - Present</i></span></li> </ul>
LEADERSHIP SKILLS	<ul style="list-style-type: none"> <li>• <b>Second Lieutenant of the Cyprus Army</b>, leader and coordinating officer for small army unit (selected through exams), during compulsory military service, 2003-2005</li> <li>• <b>Founder of the Hellenic Student Association at UC San Diego</b>, Treasurer, 2013-2015</li> <li>• <b>Member of organizing committee of the Educational Trip 2015</b>, www.edutrip.gr, 2015</li> <li>• <b>Founder and Organizer of the Student Competition "Building the Future"</b>, leader and coordinating officer for small army unit (selected through exams), during</li> </ul>

compulsory military service, 2022 - Present

COMPUTER  
SKILLS

**Programming Languages**

- Python, Matlab, Fortran

**Softwares**

- ABAQUS, FEMAP, ANSYS Workbench, FEAP, LS-DYNA
- Mathematica, MathCad
- Microsoft Office (Word, Excel, Power Point)
- Autocad 2D (AutoCAD 2006 LEVEL I, Certificate No 2324487), Autocad 3D (AutoCAD 2007 LEVEL II, Certificate No 2356107), 3D Studio Max (Autodesk VIZ 2007 Level I, Certificate No 2375130)