

# SUMMARY CURRICULUM VITAE AS RELATED TO NONSTRUCTURAL SYSTEMS

Emmanuel "Manos" Maragakis

## A. CURRENT POSITION

Dean of Engineering and Professor of Civil and Environmental Engineering, University of Nevada, Reno  
University of Nevada Reno Foundation Professor (since 2005)

## B. EDUCATIONAL RECORD

1. B.S. Civil Engineering June 1980  
National Technical University of Athens, Greece (5-year program)
2. M.S. Civil Engineering June 1981  
California Institute of Technology, Pasadena
3. Ph.D. Civil Engineering Dec. 1984  
California Institute of Technology, Pasadena (thesis supervisor: Dr. Paul C. Jennings)

## C. PROFESSIONAL EXPERIENCE

### Professor, Chair, Dean

8/1984-6/1989	Assistant Professor, Civil Engineering Department, University of Nevada, Reno, Nevada.
7/1989-6/1994	Associate Professor, Civil Engineering Department, University of Nevada, Reno, Nevada.
7/1994-6/2008	Professor and Chair, Civil and Environmental Engineering Department, University of Nevada, Reno, Nevada.
5/2005	Awarded the title of University of Nevada, Reno Foundation Professor.
7/2008-2/2009	Interim Dean, College of Engineering.
2/2009-Now	Dean, College of Engineering ( <a href="http://www.unr.edu/engineering">http://www.unr.edu/engineering</a> )

## D. RESEARCH EXPERIENCE RELATED TO NONSTRUCTURAL SYSTEMS

### 1. Research Interests

Earthquake response of highway bridges and buildings with emphasis on short-span skew bridges, field testing of bridges, soil-structure interaction effects on bridges and structures, computer modeling of concrete structures, structural analysis, fatigue analysis of railway bridges, seismic response and design of railway bridges, seismic response of buried and above ground pipelines and shake table testing, seismic response of nonstructural systems and components, interaction between structural and nonstructural elements.

### 2. Research Grants related to Nonstructural Systems

1. E. Maragakis, A. Itani "Experimental Data for the seismic performance of piping distribution systems", 12/03-11/04, MCEER/NSF, \$78,000.
2. Maragakis, M. and Itani, A., "Non-Structural Portfolio, 10/05-6/06, MCEER/NSF, \$78,000.
3. Maragakis, M. and Itani, A., "Innovative bracing systems for nonstructural piping systems", 10/06-12/07, MCEER/NSF, \$79,989.
4. Maragakis, M. and Itani, A., "Innovative bracing systems for nonstructural piping systems: second phase", 3/07-12/07' MCEER/NSF, \$37,951.
5. Maragakis, E. "NEESR GC: Simulation of the Seismic Performance of Nonstructural Systems" 9/07-8/12, NSF Grand Challenge project, \$ 3.6M (the award process included a reverse site visit with presentation in June 2007). This project required coordination of the efforts of researchers and practitioners from 23 institutions around the country and the world (other Co-PI's are: A. Filiatrault

from University at Buffalo, S. French from Georgia Tech, T. Hutchinson from UC San Diego, B. Reitherman, from CUREE).

6. Maragakis, E. “Supplement to the NEESR GC: Simulation of the Seismic Performance of Nonstructural Systems” to perform experiments of nonstructural systems in collaboration with the NEES TIPS E-Defense Full Scale Seismic Isolation Program”, \$210K, April 2011.

### 3. Selected Publications related to Nonstructural Systems

#### a. Reviewed Refereed Publications (Full paper review)

1. Zaghi, A. E., Maragakis, E. M., Itani, A., and Goodwin, E. (2010) “Experimental and Analytical Studies of Hospital Piping Subassemblies Subjected to Seismic Loading,” *Earthquake Spectra*, EERI, February 2012.
2. Zaghi, A. E., Soroushian, S., Itani, A., Maragakis, E. M., and Pekcan, G., (2012) “Effect of Column-to-Beam Strength Ratio on the Seismic Response of Steel Moment Resisting Frames,” *International Journal of Steel Structures*.
3. Weiser, J., Pekcan, G., Zaghi, E., Itani, A., Maragakis, M., (2013) “Floor Acceleration in Yielding SMRF Structures”, *Earthquake Spectra*, 29(3), pp.987-1002.
4. Soroushian, S., Zaghi, A. E., Maragakis, E. M., Echevarria, A., Tian, Y., Filiatrault, A., (2013) “Analytical Seismic Fragility Analyses of Fire Sprinkler Piping Systems with Threaded Joint,” *Earthquake Spectra*, EERI, Extended Paper, <http://dx.doi.org/10.1193/083112EQS277M>
5. Zaghi, A. E., Soroushian, S., Itani, A., Maragakis, E. M., Pekcan, G., and Kashani, M., (2014) “Impact of Column-to-Beam Strength Ratio on the Seismic Response of Steel MRFs,” *Bulletin of Earthquake Engineering*, Available Online. DOI: 10.1007/s10518-014-9634-9.
6. Soroushian, S., Zaghi, A. E., Maragakis, E. M., Echevarria, A., Tian, Y., Filiatrault, A., (2014) “Seismic Fragility Study of Fire Sprinkler Piping Systems with Grooved Fit Joints,” , *Journal of Structural Engineering*, ASCE, Available Online. DOI 10.1061/(ASCE)ST.1943-541X.0001122
7. Soroushian, S., Zaghi, A. E., Maragakis, E. M., Echevarria, A. (2014) “Seismic Fragility Study of Displacement Demand on Fire Sprinkler Piping Systems,” *Journal of Earthquake Engineering*, Vol.18 (7), pp.1129-1150, Published Online. DOI:10.1080/13632469.2014.917059.
8. Zaghi, A. E., Soroushian, S., Itani, A., Maragakis, E. M., Pekcan, G., and Kashani, M., (2015) “Impact of Column-to-Beam Strength Ratio on the Seismic Response of Steel MRFs,” *Bulletin of Earthquake Engineering*, Volume 13, Issue 2, pp 635-652. DOI:10.1007/s10518-014-9634-9.
9. Soroushian, S., Maragakis, M., and Jenkins, C., (2014) “Axial Capacity Evaluation of Typical Suspended Ceiling Joints,” *Earthquake Spectra*, EERI, Available Online. DOI:<http://dx.doi.org/10.1193/123113EQS301M>
10. Soroushian, S., Maragakis, M., and Jenkins, C., (2015) “Capacity Evaluation of Suspended Ceiling Components, Part 1: Experimental Studies”, *Journal of Earthquake Engineering*, Published Online. DOI:10.1080/13632469.2014.998354
11. Soroushian, S., Maragakis, M., and Jenkins, C., (2015) “Capacity Evaluation of Suspended Ceiling Components, Part 2: Analytical Studies”, *Journal of Earthquake Engineering*, Published Online. DOI:10.1080/13632469.2015.1006345.
12. Rahmanishamsi, E., Soroushian, S., and Maragakis, M., (2015) “Cyclic Shear Behavior of Gypsum Board-to-Steel Stud Screw Connections in Nonstructural Walls”, *Earthquake Spectra*, EERI, Published Online. DOI: <http://dx.doi.org/10.1193/062714EQS091M>
13. Soroushian, S., Rahmanishamsi, E., Ryu, K. P., Maragakis, E. M., Reinhorn, A.M., (2015) “Experimental Fragility Analysis of Suspension Ceiling Systems”, *Earthquake Spectra*, EERI, Published Online. DOI: <http://dx.doi.org/10.1193/071514EQS109M>

14. Ryan, K., Soroushian, S., Maragakis, M., Sato, E., Sasaki, T., Okazaki, T., (2015) “Seismic Simulation of Integrated Nonstructural Systems at E-Defense, Part 1: Influence of 3D Structural Response and Base Isolation,” *Journal of Structural Engineering, ASCE, In Press, Published Online. DOI:10.1061/(ASCE)ST.1943-541X.0001384.*
15. Soroushian, S., Maragakis, M., Ryan, K., Sato, E., Sasaki, T., Okazaki, T., and Mosqueda, G., (2015) “Seismic Simulation of Integrated Nonstructural Systems at E-Defense, Part 2: Evaluation of Nonstructural Damage and Fragilities,” *Journal of Structural Engineering, ASCE, Journal of Structural Engineering, ASCE, In Press, Published Online. DOI:10.1061/(ASCE)ST.1943-541X.0001385.*
16. Rahmanishamsi, E., Soroushian, S., and Maragakis, M., (2015) “Capacity Evaluation of Typical Gypsum-Stud Screw Connections”, *Earthquake Spectra, EERI, In Press, Published Online. DOI: 10.1080/13632469.2015.1109567.*
17. Soroushian, S., Maragakis, E. M., Zaghi, A. E., Rahmanishamsi, E., Itani, M., Pekcan, G., (2015) “Response of a 2-Story Test-Bed Structure for the Seismic Evaluation of Nonstructural Systems”, *Earthquake Engineering and Engineering Vibration, Accepted.*
18. Soroushian, S., Maragakis, E. M., Zaghi, A. E., Ansari, A., (2015) “Estimation of Structural Floor Vertical Displacement Using a Wavelet De-Noising Method”, *Earthquake Engineering and Structural Dynamic, In Press, Published Online. DOI: 10.1080/13632469.2015.1109567.*
19. Rahmanishamsi, E., Soroushian, S., and Maragakis, M., (2015) “Capacity Evaluation of Typical Stud-Track Screw Connections”, *Journal of Earthquake Engineering, In Press, Published Online. DOI: 10.1080/13632469.2015.1109567.*
20. Soroushian, S., Rahmanishamsi, E., Maragakis, E. M., (2015) “A State of the Art Review on the Analytical Simulation of Ceiling, Piping, and Partitions”, *Bulletin of the New Zealand Society for Earthquake Engineering, Accepted.*
21. Rahmanishamsi, E., Soroushian, S., Maragakis, E. M., (2016) “Analytical model for the in-plane seismic performance of cold-formed steel-framed gypsum partition walls”, *Earthquake Engineering and Structural Dynamics, Vol.45, pp. 619–634. DOI: 10.1002/eqe.2676.*
22. Rahmanishamsi, E., Soroushian, S., Maragakis, E. M., (2016) “Evaluation of Out-of-Plane Behavior of Stud-to-Track Connections in Nonstructural Partition Walls”, *Thin-Walled Structures Journal, Vol.103, pp. 211–225. DOI: 10.1016/j.tws.2016.02.018.*
23. Jenkins, C., Soroushian, S., Rahmanishamsi, E., Maragakis, E. M., (2016) “Experimental Fragility Analysis of Cold-Formed Steel-Framed Partition Wall Systems”, *Thin-Walled Structures Journal, Vol.103, pp. 115–127. DOI: 10.1016/j.tws.2016.02.015.*
24. Rahmanishamsi, E., Soroushian, S., Maragakis, E. M., (2016) “Capacity Evaluation of Typical Track-to-Concrete Power-Actuated Fastener Connections in Nonstructural Walls”, *ASCE Journal of Structural Engineering, In Press, Published Online. DOI: 10.1061/(ASCE)ST.1943-541X.0001472.*
25. Jenkins, C., Soroushian, S., Rahmanishamsi, E., Maragakis, E. M., (2016) “Experimental Fragility Analysis of Pressurized Fire Sprinkler Piping Systems”, *Journal of Earthquake Engineering, Accepted*
26. Zaghi, A. E., Soroushian, S., Echevarria, A., and Maragakis, M., (20xx) “Development and Validation of a Numerical Model for Suspended Ceiling Systems with Acoustic Tiles”, *Bulletin of Earthquake Engineering, Under Review.*
27. Jenkins, C., Soroushian, S., Rahmanishamsi, E., Maragakis, E. M., (20xx) “Fragility Analysis of Suspended Ceiling Systems in a Full-Scale Experiment”, *Journal of Structural Engineering, ASCE, Under Review.*

28. Rahmanishamsi, E., Soroushian, S., Maragakis, E. M., Shirazi, R. S., (20xx) “Analytical Model to Capture the In-Plane and Out-of-Plane Seismic Behavior of Partition Walls with Returns, Journal of Structural Engineering, ASCE, *Under Review*.
29. Zaghi, A. E., Soroushian, S., Echevarria, A., Maragakis, M., and Bagtzoglou, A. (20xx) “Development and Validation of a Numerical Model for Suspended Ceiling Systems with Acoustic Tiles”, ASCE Journal of Architectural Engineering, *Under Review*.

**b. Fully Peer Reviewed Research Reports**

1. Meis, R., Maragakis, M., Siddharthan, R., “Behavior of Underground Piping Joints Due to Static and Dynamic Loading”, Report MCEER 03-0006, Buffalo, New York, January 2004.
2. Goodwin, E., Maragakis, M., Itani, A., “Experimental Evaluation of the Seismic Performance of Hospital Piping Assemblies” Report, MCEER 07-0013, Buffalo, New York, December 2007.
3. Weiser, J., Pekcan, G., Zaghi, A., Itani, A., Maragakis, M., “Assessment of Floor Accelerations in Yielding Buildings”, MCEER, 2012.
4. Soroushian, S., Maragakis, E. M., Zaghi, A. E., Echevarria, A., Tian, Y., Filiatrault, A., (2014) “Comprehensive Analytical Seismic Fragility Analyses of Fire Sprinkler Piping Systems with Threaded Joint,” Technical Report MCEER, State University of New York at Buffalo, NY, MCEER 14-0002, Published Online <http://mceer.buffalo.edu/pdf/report/14-0002.pdf>

**c. Invited Papers (for presented papers presenters are shown in parenthesis)**

1. Maragakis, E., Corbin, R., Itani, A., Goodwin E., “Experimental Evaluation of the Seismic Performance of Hospital Piping Subassemblies”, *Proceedings of the 2007 SEI Structural Congress*, Long Beach, CA, May 2007 (abstract only, presented by Dr. Maragakis).
2. Maragakis, M., “Importance of Nonstructural Elements on the Functionality of Buildings”, *Proceedings of the 12<sup>th</sup> U.S.-Japan Workshop on Improvement of Structural Design and Construction Practices*, September 10-12, 2007, Kauai, Hawaii (presented by Dr. Maragakis).
3. Maragakis, E., “A Review of the Seismic Performance of the Ceiling-Piping-Partition Nonstructural Systems”, *Proceedings, Fifth International Conference on Urban Earthquake Engineering*, Tokyo Institute of Technology, Tokyo, Japan, March 4-5, 2008, pp. 589-594 (presented by Dr. Maragakis).
4. Maragakis, E. M., Zaghi, A. E., Itani, A., Pekcan, G., Soroushian, S. and Wieser, J., “Development of a Large-Scale Test Bed for the Simulation of the Seismic Performance of Nonstructural Systems,” *Proceedings, Eighth International Conference on Urban Earthquake Engineering*, Tokyo Institute of Technology, Tokyo, Japan, March 2011 (presented by Dr. Maragakis).
5. Soroushian, S., Maragakis, M., Ryan, K., Zaghi, A. E., Sato, E., Mosqueda, G., Tedesco, L., and Alvarez, D., “Seismic Response of Nonstructural Systems in NEES TIPS/NEES Nonstructural/NIED Collaborative Tests,” 9th International Conference on Urban Earthquake Engineering & 4th Asia conference on earthquake engineering, March 2012, Tokyo Institute of Technology, Tokyo, Japan (presented by Dr. Maragakis).
6. Soroushian, S., Maragakis, E. M., Zaghi, A. E., Echevarria, A., Tian, Y., Filiatrault, A., “Numerical Seismic Fragility of Fire Sprinkler Piping Systems with Threaded Joints, 10th International Conference on Urban Earthquake Engineering, March 2013, Tokyo Institute of Technology, Tokyo, Japan (presented by Dr. Maragakis).
7. Soroushian, S., Maragakis, E. M., Zaghi, A. E., Rahmanishamsi, E., Itani, M., Pekcan, G., “Response of a 2-Story Test-Bed Structure for the Seismic Evaluation of Nonstructural Systems”, International Workshop on the Seismic Performance of Non-structural Elements (SPONSE), August 2014, Harbin, China (presented by Dr. Maragakis).

8. Soroushian, S., Maragakis, E. M., “Numerical Simulation of the Performance of Integrated Ceiling-Sprinkler Systems”, Structural Engineering Frontier Conference (SEFC), March 2015, Yokohama, Japan.

**d. Papers in Conference Proceedings (Abstract or full paper review publications-for presented papers presenters are shown in parenthesis)**

1. Maragakis, M., “NEESR GC: Simulation of the Seismic Performance of Nonstructural Systems”, *NEES 6<sup>th</sup> Annual Meeting*, June 18-20, 2008, Portland, Oregon (abstract only) (presented by Dr. Maragakis).
2. Maragakis, E. M., Zaghi, A. E., Itani, A., Pekcan, G., Soroushian, S. and Wieser, J., “Simulation of the Seismic Performance of Nonstructural Systems: Development of a Large Scale Test-Bed Structure,” NSF Engineering Research and Innovation Conference, January 2011, Georgia, Atlanta, GA, USA (poster presentation).
3. Zaghi, A. E., Maragakis, E. M., Itani, A., and Goodwin, E. “Experimental and Analytical Studies of Hospital Piping Subassemblies Subjected to Seismic Loading” Structures Congress, ASCE, Apr. 2011, Las Vegas, USA (presented by E. Zaghi).
4. Soroushian, S., Maragakis, E. M., Itani, M., Pekcan, G., Zaghi, A. E. “Design of a Test Bed Structure for Shake Table Simulation of the Seismic Performance of Nonstructural Systems” Structures Congress, ASCE, April 2011, Las Vegas, USA (presented by S. Soroushian).
5. Zaghi, A. E., Soroushian, S., Wieser, J., Maragakis, E. M., Pekcan, G., Itani, M., “Seismic Analysis of Fire Sprinkler Systems,” Eighth International Conference on Structural Dynamics EUROLYN 2011, Jul 2011, Leuven, Belgium.
6. Soroushian, S., Zaghi, A. E., Ryan, K., Maragakis, M., Mosqueda, G., “Seismic Response of Steel Studded Gypsum Partition Walls in NEES TIPS/NEES Nonstructural/NEID Collaborative Tests on a Full Scale 5-Story Building”, *Proceedings of the Structures Congress 2012*, Structures Congress, ASCE, Mar. 2012, Chicago, USA (accepted for publication and presentation).
7. Soroushian, S., Zaghi, A. E., Ryan, K., Maragakis, M., Alvarez, D., Fleming, R., Tedesco, L., “Seismic Response of Ceiling/Sprinkler Piping Nonstructural Systems in NEES TIPS/NEES Nonstructural/NEID Collaborative Tests on a Full Scale 5-Story Building”, *Proceedings of the Structures Congress 2012*, Structures Congress, Mar. 2012, Chicago, IL, ASCE.
8. Ryan, K., Dao, N., Soroushian, S., Sato, E., Maragakis, M., Zaghi, A., Sasaki, T., Mosqueda, G., McMullin, K., Okazaki, T., “Seismic Interaction of Structural System and Nonstructural Components in the NEES TIPS/NEES Nonstructural/NEID Collaborative Tests at E-Defense”, *Proceedings of the Structures Congress 2012*, Structures Congress, Mar. 2012, Chicago, IL, ASCE.
9. Wieser, J., Zaghi, A. E., Maragakis, E. M., Buckle, I., “Seismic Pounding at Abutments of Curved Bridges”, *Proceedings of the Structures Congress 2012*, Structures Congress, Mar. 2012, Chicago, IL, ASCE, pp. 613-624.
10. Soroushian, S., Ryan, K., Maragakis, M., Sato, E., Sasaki, T., Okazaki, T., Tedesco, L., Mosqueda, G., Alvarez, D., “NEES/E-Defense Tests: Seismic Performance of Ceiling / Partition / Sprinkler Piping Nonstructural Systems in Base Isolated and Fixed Base Building” *Proceedings of the 15<sup>th</sup> World Conference of Earthquake Engineering*, (15WCEE), Lisbon, Portugal.
11. Weiser, J., Zaghi, A., Maragakis, M., Buckle, I., “Experimental Evaluation of Seismic Pounding at Seat-Type Abutments of Horizontally Curved Bridges”, *Proceedings of the 15<sup>th</sup> World Conference of Earthquake Engineering*, (15WCEE), Lisbon, Portugal.
12. Echevarria, A., Soroushian, S., Zaghi, A. E., Maragakis, M., “Seismic Fragility of Suspended Ceiling Systems”, *Proceedings of the 15<sup>th</sup> World Conference of Earthquake Engineering*, (15WCEE), Lisbon, Portugal.

13. Soroushian, S., Zaghi, A. E., Maragakis, E. M., Echevarria, A., Tian, Y., Filiatrault, A., “Analytical Seismic Fragility Study of Threaded Joint Fire Sprinkler Piping Systems”, ASCE/SEI Structures Congress, May 2013, Pittsburg, PA.
14. Soroushian, S., Zaghi, A. E., Maragakis, M., Pekcan, G., Itani, A., and Rahmanishamsi, E., “Development of Shake Table Motions for System-Level Full-Scale Seismic Evaluation of Drift-Sensitive Nonstructural Systems”, ASCE/SEI Structures Congress, May 2013, Pittsburg, PA.
15. Rahmanishamsi, E., Soroushian, S., Maragakis, M., Pekcan, G., and Itani, A., "Seismic Response of Metal Stud Partition Walls in NEESR-GC Tests on a Full Scale Two-Story Building", ASCE/SEI Structures Congress, May 2013, Pittsburg, PA.
16. Rahmanishamsi, E., Soroushian, S., Maragakis, M., Itani, A., and Pekcan, G., “Seismic Response of Ceiling and Sprinkler Piping Systems, Sprinkler Piping and Nonstructural Partitions to Earthquake Loading", ASCE/SEI Structures Congress, May 2013, Pittsburg, PA.
17. Soroushian, S., Maragakis, E. M., Jenkins, C., “Analytical Simulation of the Performance of Ceiling-Sprinkler Systems in Shake Table Tests Performed on a Full-Scale 5-Story Building”, ASCE/SEI Structures Congress, April 2014, Boston, MA.
18. Rahmanishamsi, E., Soroushian, S., Maragakis, M., “Seismic Response of Ceiling/Piping/Partition Systems in NEESR-GC System-level Experiments”, ASCE/SEI Structures Congress, April 2014, Boston, MA.
19. Soroushian, S., Rahmanishamsi, E., Ryu, K. P., Maragakis, E. M., Reinhorn, A.M., “A Comparative Study of Sub-System and System Level Experiments of Suspension Ceiling Systems”, Tenth U.S. National Conference on Earthquake Engineering, July 2014, Anchorage.
20. Rahmanishamsi, E., Soroushian, S., Maragakis, M., “System-Level Experiments on Ceiling/Piping/Partition Systems at UNR-NEES Site”, Tenth U.S. National Conference on Earthquake Engineering, July 2014, Anchorage, AK.
21. Soroushian, S., Maragakis, E. M., Zaghi, A. E., Echevarria, A., “Seismic Performance of Suspended Ceiling Systems in Base Isolated Buildings”, ASCE/SEI Structures Congress, April 2015, Portland, OR.
22. Rahmanishamsi, E., Soroushian, S., Maragakis, E. M., “Analytical Model for the Seismic Performance of Cold-Formed Steel-Framed Gypsum Partition Walls”, ASCE/SEI Structures Congress, April 2015, Portland, OR.
23. Jenkins, C., Soroushian, S., Rahmanishamsi, E., Maragakis, E. M., “Experimental Fragility Analysis of Cold-Formed Steel-Framed Partition Wall Systems”, ASCE/SEI Structures Congress, April 2015, Portland, OR.
24. Soroushian, S., Masroor, A., Rahmanishamsi, E., Almufti, I., Maragakis, E. M., “Finite Element Analysis and Simulation of Cold-Formed Steel-Framed Gypsum Partition Walls”, 16th World Conference on Earthquake Engineering (16WCEE), January 2017, Santiago, Chile (forthcoming).
25. Rahmanishamsi, E., Soroushian, S., Maragakis, E. M., “Analytical Model for Seismic Assessment of Nonstructural Partition Walls with Returns”, 16th World Conference on Earthquake Engineering (16WCEE), January 2017, Santiago, Chile (forthcoming).

## **E. CONSULTING**

1. Consultant for ATC-58 on the development of experimental protocols for testing of nonstructural components, September 2004-November 2005 and September 2007-December 2012.