

Masoud Soltani Mohammadi, Ph.D

Associate Professor

Earthquake Engineering Group
Faculty of Civil and Environmental Engineering
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Educational background

2002-2003	Postdoctoral Research Associate (University of Tokyo/Japan 2002)
October 1999 - September 2002	PhD, University of Tokyo/Japan, Topic: "Micro Computational Approach to Post Cracking Constitutive Laws of Reinforced Concrete and Application to Nonlinear Finite Element Analysis"
September 1995 - March 1998	M.Sc. in Earthquake Engineering, University of Tehran Topic: " Nonlinear Behavior of High Rise Telecommunication Tower"
September 1991 - September 1995	B.S. in Civil Engineering, University of Tehran

Visiting appointments

Summer 2005-2010, 2012, 2015	University of Tokyo, Japan
Summer 2018	Yokohama National University, Japan
Summer 2010	Tsinghua University, Beijing, China

Teaching Experience

1. Continuum mechanics, from 2003 till now (Tarbiat Modares University)
2. Random vibration , from 2004 till now (Tarbiat Modares University)
3. Advanced engineering mathematics , from 2004 till now (Tarbiat Modares University)
4. Seismic evaluation and strengthening of structures, from 2006 till now (Tarbiat Modares University)
5. Nonlinear Analysis of Structures, from 2009 till now (Tarbiat Modares University)
6. Advance topics in analysis and design of RC members, from 2013 till now (Tarbiat Modares University)

Research Interests

Seismic performance evaluation and strengthening of RC and masonry structures.
Nonlinear behavior and failure assessment of reinforced concrete.
Nonlinear constitutive laws and material models of reinforced and plain concrete.
Nonlinear constitutive laws and material models of masonry.
Size effect and fracture mechanics.
Behavior of damaged reinforced concrete members.
Durability performance-based analysis and design.

Selected Publications

- 1 Soltani M., An X., Maekawa K. "Computational Model for Post Cracking Analysis of RC Membrane Elements Based on Local Stress-Strain Characteristics" *Int. Journal of Engineering Structures*, Elsevier Science, 2003, Vol. 25, Issue 8, pp. 993-1007.
- 2 Soltani M., An X., Maekawa K. "Cracking Response and Local Stress Characteristics of RC Membrane Elements Reinforced with Welded Wire Mesh", *Int. Journal of Cement and Concrete Composite*, Elsevier Science, 2004, vol. 26, pp. 389-404.
- 3 Jin C., Soltani M., An X. "Experimental and Numerical Study of Cracking Behavior of Openings in Concrete Dams." *Int. Journal of Computers & Structures*, Elsevier Science, 83 (2005) 525–535.
- 4 Soltani M., An X., Maekawa K. "Localized Nonlinearity and Size-Dependent Mechanics of In-plane RC Element in Shear." *Int. Journal of Engineering Structures*, Elsevier Science, 27 (2005) 891–908.
- 5 Ishida T., Maekawa K., Soltani M. "Theoretically Identified Strong Coupling of Carbonation Rate and Thermodynamic Moisture States in Micro-pores of Concrete" *Int. Journal of Advanced Concrete Technology*, vol 2, No. 2, 213-222, 2004 (selected as the best paper of the year by JCI).
- 6 Maekawa K., Soltani M., Ishida T., Yutaka Itoyama "Time-Dependent Space-Averaged Constitutive Modeling of Cracked Reinforced Concrete Subjected to Shrinkage and Sustained Loads", *Int. Journal of Advanced Concrete Technology*, Vol. 4, No. 1, 1-15, 2006.
- 7 Soltani M., Maekawa K., "Path-dependent mechanical model for deformed reinforcing bars in RC interface under coupled cyclic shear and pullout tension", *Int. Journal of Engineering Structures*, Elsevier Science, 30, 1079–1091, 2008.
- 8 Maekawa K., Fukuura N., Soltani M. "Path-Dependent High Cycle Fatigue Modeling of Joint Interface in Structural Concrete." , *Int. Journal of Advanced Concrete Technology*, Vol.6, No.1, 227-242, 2008.
- 9 Badarloo B, Tasnimi AA, Soltani M. "Failure criteria of unreinforced grouted brick masonry based on biaxial compression test", *Scientia Iranica*, Vol. 16, No. 6, pp. 502-511, 2009.

- 10 Hashemi S. SH., Tasnimi A.A., Soltani M. "Nonlinear Cyclic Analysis of Reinforced Concrete Frames, Utilizaing New Joint Element.", *Scientia Iranica*, Vol. 16, No.6, pp. 490-502, 2009.
- 11 Badarloo B., Tasnimi A.A., Soltani M. "Failure Criteria of Unreinforced Grouted Brick Masonry Based on a Biaxial Compression Test.", *Scientia Iranica*, Vol. 16, No.6, pp. 502-512, 2009.
- 12 Lavassani H.H., Tasnimi A.A., Soltani M. "A Complete Hysterical Constitutive Law for Reinforced Concrete Under Earthquake Loading.", *Journal of Seismology and Earthquake Engineering*, Vol. 11, No.1, pp. 17-31, 2009.
- 13 Ghiassi B., Soltani M., "Local Stress Field Approach for Shear Failure Assessment of Reinforced Concrete Members" *Journal of Advanced Concrete Technology*, Japan Concrete Institute, Vol. 8, No. 2, pp. 1-16, 2010.
- 14 Arabzadeh, A., Soltani, M., Ayazi, A. "Experimental investigation of composite shear walls under shear loadings" *Thin-Walled Structures*, Volume 49, Issue 7, Pages 842-854, 2011.
- 15 Ghiassi B., Soltani M., Tasnimi A. A., "Seismic Evaluation of Masonry Structures Strengthened with Reinforced Concrete Layer", *Journal of Structural Engineering*, ASCE, 138 (6), pp. 729-743, 2012.
- 16 Ranjbaran F. Hosseini M., Soltani M., "Simplified Formulation for Modeling the Nonlinear Behavior of Confined Masonry Walls in Seismic Analysis", *International Journal of Architectural Heritage: Conservation, Analysis, and Restoration*, Taylor & Francis Group, LLC, 6(3), 259-289, 2012.
- 17 Ghorbi E., Soltani M., Development of a compressive constitutive model for FRP-confined concrete elements", *J of Composites Part B*, V. 45. 504-517, 2013.
- 18 Ghiassi B., Soltani M., Tasnimi A. A., "A Simplified Model for Analysis of Unreinforced Masonry Shear Walls under Combined Axial, Shear and Flexural Loading, *Engineering Structures*", Vol. 42, 396-409, 2012.
- 19 Ghiassi B., Soltani M., Pourkeramat, P. "Local stress field approach for post cracking analysis of FRP strengthened RC elements", *J of Composites Part B*, V. 53. 234-248, 2013.
- 20 Moradi A., Soltani M., Tasnimi A. A., A Simplified Constitutive Model for Dowel Action across RC Crack, *Journal of Advanced Concrete Technology*,10 (8), 264-277,2012.
- 21 Moradi A., Soltani M., Tasnimi A. A., Stress Transfer Behavior of Reinforced Concrete Cracks and Interfaces, *ACI Structural Journal*, 112(1), 69-80, 2015.
- 22 Soltani, M., Maekawa, K. Numerical simulation of progressive shear localization and scale effect in cohesionless soil media, *International Journal of Non-Linear Mechanics*, 69, 1-13, 2015.

- 23 Rahimi, S., Soltani, M. A stochastic simulation algorithm for evaluation of seismic pounding response of adjacent structures, *Journal of Risk and Reliability*, Accepted for publication.
- 24 Moshirabadi, S., Soltani, M., Maekawa, K., Seismic interaction of underground RC ducts and neighboring bridge piers in liquefiable soil foundation, *Acta Geotechnica*, Springer, DOI 10.1007/s11440-015-0392-x.
- 25 JahanMohammadi, A., Soltani, M., Towards Combined Local-Average Stress Field Modeling of Reinforced Concrete, *Engineering Structures*, 111, 394-410, 2015.
- 26 JahanMohammadi, A., Soltani, M., Size Effect Simulation of Shear Critical RC Members: Local-Average Stress Field Approach, *Asian Journal of Civil Engineering*, 17 (2), 169-192, 2016.
- 27 Hamidpour, S., Soltani, M., Probabilistic assessment of ground motions intensity considering soil properties uncertainty, *Soil Dynamics and Earthquake Engineering*. Vol. 90, 158–168, 2016.
- 28 Ansari M., Daneshjoo F., Soltani M., The assessment of seismic residual displacement of concrete one column bent bridges with forced-based fiber elements, *Journal of Transportation Researchm* 13(1), 46, 2016.
- 29 Mirzabagheri, S., Tasnimi, A.A., Soltani M., Behavior of interior RC wide and conventional beam-column roof joints under cyclic load, *Engineering Structures*, 111(15), 333-344, 2016.
- 30 Bayati, Z. Soltani, M., Ground motion selection and scaling for seismic design of RC frames against collapse, *Earthquakes and Structures*, 11 (3), 445-459, 2016.
- 31 Rahimi, S., Soltani, M. Expected Extreme Value of Pounding Force Between Two Adjacent Buildings, *Structural Engineering and Mechanics*, 61(2):183-192 , January 2017
- 32 Hamidpour, S., Soltani M., Shabdin M., Probabilistic seismic assessment of structures considering soil uncertainties, *Earthquakes and Structures*, 12(2):165-175 2016.
- 33 Amouzadeh, M., Soltani M., In-plane response of unreinforced masonry walls confined by reinforced concrete tie-columns and tie-beams, *Advances in Structural Engineering*, 20(11), 1632-1643, 2017.
- 34 Jafari, M., Soltani, M., A stochastic adaptive pushover procedure for seismic assessment of buildings, *Earthquakes and Structures*, 14(5), 472-492, 2018.
- 35 Ghiassi, B., Soltani, M., Rahnamye Sepehr, S., Micromechanical modeling of tension stiffening in FRP-strengthened concrete elements, *Journal of Composite Materials*, accepted for publication, 2018.
- 36 Moshirabadi, S., Soltani, M., Implementation of smeared crack approach in rigid block and spring modeling of reinforced concrete, *Engineering Structures*, 2019.

- 37 Nikooravesh, M., Soltani, M., Behavior of unreinforced masonry piers strengthened using centercore method; experimental investigation, *Construction and Building Materials*, Volume 189, 236-244, 2018.
- 38 Samira Ebrahimi a., Hamzeh Shakib b., Masoud Soltani b., Zahrai M., Hysteretic behavior of link beams with different cross-sections and stiffener arrangements, *Journal of Constructional Steel Research*, 2020
- 39 Shari, A., Massomi, A., Soltani, M., Homami, P., Experimental evaluation of nonlinear behavior of unreinforced masonry (URM) walls retrofitted using center-core technique, *Journal of Structural and Construction Engineering*, 2021. Accepted for publication
- 40 Nikooravesh, M., Soltani, M., Mohammadi E., Seismic retrofitting of Persian arched walls by centercore method: Experimental and numerical investigation, *International Journal of Architectural Heritage* , 2021, Accepted for publication

And more than 40 journal papers in Persian.

Research Projects & Technical Reports

- “Floor Response Spectra and Seismic Loads Determination for Design of Non-structural Systems”, MATN (Power Research Center of Iran), Tehran, 1997.
- “Design Loads for Design of Secondary Systems and Equipment’s Supports” In: Draft of Earthquake Code for Power Plants, MATN (Power Research Center of Iran), Tehran, 1997.
- “Seismic response of tall chimneys and cooling towers”, MATN (Power Research Center of Iran), Tehran, 1997.
- “Seismic analysis and design of tall elevators of Shazand refinery of Arak”. Tehran, 1998, A member of research team.
- “Determination of Site Dependent Design Response Spectra for New Building of Governorship in Tehran/Iran”. A member of research team, Geophysics Organization of the University of Tehran, Iran. 1999
- “Determination of a Site Dependent Design Response Spectrum for Sahand Heat Power Plant.” A member of research team, Geophysics Organization of the University of Tehran, Iran. 1999.
- “National Building Regulations, Chapter 11”, A member of research team, 2005.
- “Revision of Instruction for Seismic Rehabilitation of Existing Buildings, Chapter 4” A member of developing team, 2010.
- “Development of a technical provision for seismic design, evaluation and rehabilitation of hospitals and medical centers in the Tehran region, A member of research team, 2010. JAAM Consultant Engineers.

- “Seismic assessment of historic masonry schools”, Project Manager, State Organization of Schools Renovation, development and mobilization, 2012-1015.
- “Regulations for Seismic Evaluation and Rehabilitation of Masonry Walls Retrofitted by Shotcrete”, Project Manager, State Organization of Schools Renovation, development and mobilization. 2013 till now.
- “National Building Regulations, Chapter 8”, member of technical committee, 2012 till now.
- “Iranian Concrete Design Code”, member of technical committee, 2014 till now.

Student Supervision

Supervision of more than 70 Master and Ph.D Students