

IRAJ H. P. MAMAGHANI, D.Eng, M.Eng, P.Eng.

University of North Dakota
Civil Engineering Department
Grand Forks, North Dakota 58202 USA
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PRESENT POSITION:

2008- Present Associate Professor, Civil Engineering
University of North Dakota (UND), Grand Forks, North Dakota

EDUCATIONAL BACKGROUND:

1996 D.Eng., Civil Engineering
Nagoya University, Nagoya, Japan
1993 M.S., Civil Engineering
Nagoya University, Nagoya, Japan
1989 B.S., Civil Engineering, *1st. Class Honors*
Istanbul Technical University, Istanbul, Turkey

TEACHING INTERESTS:

Dr. Mamaghani has developed and taught the following undergraduate and graduate courses for both On-campus and Distance Engineering Degree Program (DEDP; online) sections since joined UND in August 2002.

Under Graduate Courses:

Statics, Mechanics of Materials, Structural Mechanics, Steel Design, Civil Engineering (Capstone) Design, Reinforced Concrete Design, Finite Element Analysis, Masonry Structures

Graduate Courses:

Structural Stability, Advanced Mechanics of Materials, Advanced Steel Design, Theory of Plasticity, Advanced Finite Element Method, Advanced Steel Bridge Design, Earthquake Engineering, Advanced Numerical Analysis, Masonry Structures, Civil Engineering Research, Advanced Masonry Structures

Dr. Mamaghani advised both undergraduate and graduate students. Dr. Mamaghani advised capstone design projects for three groups (in spring semester) and three groups (in fall semester) of undergraduate students, respectively, under Civil Engineering (Capstone) Design courses.

RESEARCH INTERESTS:

- Experimental (small- to large-scale), numerical (non-linear finite element analysis) and analytical research with the primary area being the behavior and design of steel, composite (steel-concrete), and masonry structures. The main focus of research is oriented towards:
 1. Development of material models for cyclic elasto-plastic behavior of structural steel and confined concrete.
 2. The study of the inelastic behavior and stability of thin-walled steel structures under cyclic/seismic load and the application of the information gained to the design of steel buildings, bridges, steel-concrete composite structures, Liquefied Natural Gas (LNG) storage tanks
- Development of Discrete Finite Element Method (DFEM) that has emerged as a solution to predicting load capacities of masonry structures. *Computational Modeling of Masonry Structures using the DFEM* explores the latest digital solutions for the analysis and modeling of brick, stone, concrete, granite, limestone, and glass block structures. Focusing on critical research on mathematical and computational methods for masonry analysis, the finding of this research is a pivotal reference source for scholars, engineers, consultants, and graduate-level engineering students.
- Monitoring and Leakage Detection in Oil and Gas Transportation and Gathering Pipelines using Machine Learning and Data Analysis Technologies

Dr. Mamaghani supervised graduate students research and published peer reviewed journal and conference papers. He served as member of PhD and MS Committees in Civil Engineering and Petroleum Engineering departments. He wrote and submitted several externally funded research proposals. Dr. Mamaghani is passionate about undergraduate and graduate education, research and publication. He remains committed to student scholarly activities and publication. Dr. Mamaghani's graduate students published and presented extensive number of papers in the prestigious journals and conference proceedings.

PROFESSIONAL EXPERIENCE:

2008-Present	Associate Professor Civil Engineering Department, University of North Dakota
2002-2008	Assistant Professor Civil Engineering Department, University of North Dakota
2000-2002	Visiting Assistant Professor Civil Engineering Department, University of Toronto, Toronto, Canada
1996-2000	Assistant Professor Civil Engineering Department, Kanazawa University, Kanazawa, Japan
1999-2000	Head of Research & Development Division Advanced Constructive Designing Ltd., Kanazawa, Japan
1993-1996	Teaching Assistant Civil Engineering Department, Nagoya University, Nagoya, Japan

COURSES DEVELOPED AND TAUGHT (REGULAR ASSIGNMENTS, UNDERGRADUATE LEVEL):

- ENGR 203 (3 cr.): Mechanics of Materials (University of North Dakota)
- CE 351(4 cr.): Structural Mechanics (University of North Dakota)
- CE 401(3 cr.): Mechanics of Materials-II (University of North Dakota)
- CE 402 (3 cr.): Structural Stability (University on North Dakota)
- CE 451 (3 cr.): Steel Design (University of North Dakota)
- CE 457(3 cr.): Advanced Steel Design (University of North Dakota)
- CE 458(3 cr.): Theory of Plasticity (University of North Dakota)
- CE 482 (3 cr.): Civil Engineering Design I (University of North Dakota)
- CE 483 (3 cr.): Civil Engineering Design II (University of North Dakota)
- CE 458 (3 cr.): Theory of Plasticity (University of North Dakota)
- Civil 270 (3 cr.): Statics/Dynamics (Kanazawa University, Kanazawa, Japan)
- Civil 280 (3 cr.): Mechanics of Materials (Kanazawa University, Kanazawa, Japan)

COURSES DEVELOPED AND TAUGHT (REGULAR ASSIGNMENTS, COMBINED GRADUATE AND UNDERGRADUATE JUNIOR/SENIOR LEVELS): These courses are taken by both graduate and junior/senior level undergraduate students in good standing,

- CE 501(3 cr.): Mechanics of Materials-II (University of North Dakota)
- CE 502 (3 cr.): Structural Stability (University of North Dakota)
- CE 557 (3 cr.): Advanced Steel Design (University of North Dakota)
- CE 558 (3 cr.): Theory of Plasticity (University of North Dakota)
- CE 562 (3 cr.): Graduate Seminar in Civil Engineering (University of North Dakota)
- CE 590 (3 cr.): Special Topics: Advanced Steel Bridge Design (University of North Dakota)
- CE 590 (3 cr.): Special Topics: Advanced Numerical of Analysis (University North Dakota)
- CE 591 (3 cr.): Civil Engineering Research (University of North Dakota)
- CE 595(3 cr.): Design Project (University of North Dakota)
- Civil 605 (3 cr.): Earthquake Engineering (Kanazawa University, Japan)

ADVISEES (UNDERGRADUATE):

2002-Present	Have been advising an average of thirty students each semester (University of North Dakota)
1996-2000	Advised an average of twenty students each semester (Kanazawa University, Japan)

ADVISEES (GRADUATE STUDENTS WITH RESEARCH TOPICS):

- **Ph.D. Students (Dissertation Option)**

Njiru Mwaura, 2019-Present (University North Dakota), “Monitoring and Leakage Detection in Oil and Gas Pipelines using Machine Learning and Data Analysis Technologies, In Progress

Wiriyachai Roopkumdee, 2017-Present (University North Dakota), “Seismic Design and Ductility Evaluation of Liquified Natural Gas (LNG) Storage Tanks, In Progress.

Qusay Al-Kaseasbeh, 2016-2019 (University North Dakota), “Hysteretic behavior of thin-walled steel tubular columns under cyclic lateral loading.” May 2019.

Saman Montazeri, 2009-2010 (University North Dakota), “Seismic design of thin-walled steel Tublar structures.”

Navid Nemati, 2008-2009 (University North Dakota), “Stability evaluation of thin-walled steel tubular columns subjected to cyclic bidirectional loading.”

Ashkan Vosooghi, January-May, 2006 (University North Dakota), “Cyclic elstoplastic Analysis and stability evaluation of steel barces.”

Hemant Yadov, January-May 2004, “Research Title: Seismic Design of Steel Framed Structures.”

- **Master of Science Students (Thesis Option):**

Fokruddin Ahmed, 2013-2015, “Local Buckling Restraining Behavior of Concrete-filled Steel Tubular (CFST) Columns under Seismic Loads.”

Wesley Keller, 2012-2014, “Seismic Design and Ductility Evaluation of Concrete-Filled Thin-Walled Steel Tubular Columns.”

Jordan Geiger, 2013-2015, “Seismic Design of Concrete-Filled Steel Tubular Piers.”

Joe Tonnenson, 2007-2009, “Evaluation of self-consolidating concrete for North Dakota Transportation structures.”

Berg Bradley, 2003-2005, “Cyclic elastoplastic analysis of thin-walled steel tubular members.”

Ersoz Erdogan, 2003-2005, “Cyclic behavior of partially concrete-filled steel tubular structures.”

Qiao Wei, 2004-2005, “Research title: Buckling Evaluation of Thin-walled Steel Tubular columns.”

Master of Engineering Students (Non-Thesis/Design Project Option):

Jeffrey Lynes, 2020-Present, “Marine Timber Pile Strength and Resistance to Marine Borer Damage, In Progress”.

Nicholas Kasanke, 2017-2019, “Buckling and Cost Analysis of a Thin Walled Hybrid Wind Tower”.

Kyle Sidler, 2015-2017 “Evaluation of Mix Design and Plastic/Hardened Properties of Self-Consolidating Concrete.”

Seth R. DeMontigny, 2015-2017, “Entrained Air Void System for Durable Highway Self-consolidating Concrete”

Basha Dorose, 2013-2015, “Stability and Ductility Evaluation of Thin-walled Circular Steel Bridge Piers under Cyclic Multidirectional loading

Amer Abdulrazzak, 2011-2013, “Design of Reinforced Expanded Polystyrene Styrofoam Covering Rock-Sheds under Impact of Falling Rock.”

Josh Reiner, 2011-2013, “Comparison of Available Seismic Design Methodologies for Concrete-Filled Steel Tubular Columns.”

Sarah Tondryk, 2008-2010, “Evaluation of Properties and Mix Design of Self-Consolidating Concrete.”

Taryn Kuusisto, 2008-2010, “Seismic Design and Flexural Performance Evaluation of Free-Standing Tubular Steel Wind Towers.”

Tala Shokri, 2008-2009, “ Analysis of urban transport construction using GIS and neural networks.”

Luke Falken, 2007-2009, “Application of sealing agents in concrete durability of infrastructural systems.”

Marynik, Lisa Marie, 2003-2005, “Mittigation of Higway Bridge Approach Settlement.”

Sackett Rachel Mahala, 2003-2005, “Aplication of Sealing Agents in Concrete Durability of Bridge Decks.”

Note: Supervised several graduate theses while he was associated with the University of Kanazawa and Nagoya University in Japan (1996-2000).

Member of Ph.D. Committee:

- **Njiru Mwaura**
CE, Advisor & Chair of Ph.D. committee, Active.
- **Wiryachi Roopkumdee**
CE, Advisor & Chair of Ph.D. committee, Active.
- **Ali-Alinejad**
CE, Ph.D. committee, Active
- **Dezhi Qiu**
PE, Ph.D. committee, Active
- **Foued Badrouchi**
PE, Ph.D. committee, Active
- **Nejma Djabelkhir**
PE, Ph.D. committee, August 2020
- **Omar Akash**
PE, Ph.D. committee, August 2020

- **Robeam Melaku**
CE, Ph.D. committee, May 2020
- **Qusay AL-Kaseasbeh**
CE, Advisor & Chair of Ph.D. committee, May 2019
- **Bahareh Shoghli**
CE, Ph.D. committee, December 2017
- **Sanjay Gurav**
CE, Ph.D. committee, May 2007.
- **Abdul Nabi Lashari**
CE, Ph.D. committee, University of Manitoba, Canada, May 2009.

Note: CE= Civil Engineering; PE = Petroleum Engineering

Member of Master of Science (M.S.) Committee:

- **Anjo Maurice Mate**
CE, MS Committee: May 2020.
- **Mohamad Mahdi Rezpour Mashhadi**
CE, MS Committee: May 2016.
- **Jeffrey R Pape**
CE, MS Committee: May 2015.
- **Matthew Hangsleben**
CE, MS Committee: May 2010.

Undergraduate Research Advising

Dr. Mamaghani leadership in non-traditional learning experiences and activities include advising an undergraduate student (**Rayce Martin**, from Department of Mechanical Engineering) research on “Dynamic Facades Towards Greener Energy Efficient Buildings” for the 2nd year (in 2017) and advising another undergraduate student (**Mark Pintur II**, from Department of Mechanical Engineering) research on “Ocean Wave Energy Converters” for the 3rd year (in 2018) of the NSF sponsored International Research Experience for Students grant, IRES: Mitigating Global Climate Change, which was ran by Dr. Wayne Seames (Department of Chemical Engineering) and was jointly sponsored by SUNRISE and the Institute for Energy Studies. Projects were jointly executed at UND and the University of Leeds in the UK (coadvised with Professor Nikolas Nikitas). UND advisors helped students to learn the research topic and oversee preliminary activities at UND that facilitate the eight-week time period at Leeds.

PUBLICATIONS

Refereed (Peer Reviewed) Journal Papers

- Roopkumdee, W., and **Mamaghani, I.H.P.** (2021) Buckling Strength Evaluation of Liquid-Filled Steel Cylindrical Tanks under Earthquake Excitations, *Earthquakes and Structures Journal*, under Review.
- **Mamaghani, I.H.P.** (2021) Cyclic Inelastic Analysis and Seismic Design of Cold-Formed Thin-Walled Steel Tubular Columns, *Metals: MDPI journals*, under review.
- **Mamaghani, I.H.P.** (2021) Ultimate Strength and Ductility Evaluation of Steel Tubular Columns under Combined Action of Axial and Cyclic Bidirectional Lateral Loading, *Metals: MDPI journals*, under review.
- Al-Kaseasbeh, Q., and **Mamaghani, I. H. P.** (2020). Thin-Walled Steel Stiffened Square Box Columns with Uniform and Graded Thickness under Bidirectional Cyclic Loading. *Journal of Engineering Structures, Elsevier*, 15 September 2020, Volume 219, Article 110919. [file:///C:/Users/iraj.mamaghani/Downloads/1-s2.0-S0141029619318061-main%20\(1\).pdf](file:///C:/Users/iraj.mamaghani/Downloads/1-s2.0-S0141029619318061-main%20(1).pdf)
- Al-Kaseasbeh, Q., and **Mamaghani, I. H. P.** (2019). Thin-Walled Steel Tubular Circular Columns with Uniform and Graded Thickness under Bidirectional Cyclic Loading *Journal of Thin-Walled Structures*, Elsevier, December 2019, Volume 145, Article 106449. <https://doi.org/10.1016/j.tws.2019.106449>
- Al-Kaseasbeh, Q., and **Mamaghani, I. H. P.** (2019). Buckling strength and ductility evaluation of thin-walled steel stiffened square box columns with uniform and graded thickness under cyclic loading. *Journal of Engineering Structures*, Elsevier, 1 May 2019, Volume 186, Pages 498-507. <https://doi.org/10.1016/j.engstruct.2019.02.026>
<https://www.sciencedirect.com/science/article/pii/S014102961832772X>
- Al-Kaseasbeh, Q., and **Mamaghani, I. H. P.** (2019). Buckling Strength and Ductility Evaluation of Thin-Walled Steel Tubular Columns with Uniform and Graded Thickness under Cyclic Loading, ASCE, *Journal of Bridge Engineering*, Volume 24, Issue 1, Paper ID: 04018105. <https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29BE.1943-5592.0001324>
- Al-Kaseasbeh, Q., and **Mamaghani, I. H. P.** (2019). "Design and Cyclic Elastoplastic Analysis of Graded Thin-Walled Steel Tubular Columns with Enhanced Strength and Ductility". *International Journal of Modern Engineering (IJME)*, 19(1), pp. 30–36.
- Wiriyaichai, R., and **Mamaghani, I. H. P.** (2019). " Evaluation of Seismic Design and Buckling Strength of Liquid- Filled Steel Cylindrical Tanks". *International Journal of Modern Engineering (IJME)*, 19(1), pp. 53–59.
- **Mamaghani, I.H.P.** (2015) Discrete Finite Element Method Application for Analysis of Unreinforced Masonry Underground Structures, *Transportation Research Record: Journal of Transportation Research Board*, No. 2522,

Transportation Research Board, Washington, D.C., DOI:10.3141/2522-13, pp. 131-136.

- **Mamaghani, I.H.P.**, Ahmad, F., Dorose, B. (2014), Cyclic Large Displacement Analysis of Steel Tubular Bridge Piers under Combined Axial and Bidirectional Lateral Loading, *International Journal of Applied Science and Technology (IJAST)*, Vol. 4, No. 6, November, PP. 38-47.
http://www.ijastnet.com/journals/Vol_4_No_6_November_2014/6.pdf
- **Mamaghani, I.H.P.** (2012), Cyclic Elastoplastic Large Displacement Analysis and Stability Evaluation of Steel Tubular Braces, *Journal of American Transaction on Engineering & Applied Sciences (ATEAS)*, pp. 75-90.
- **Mamaghani, I.H.P.**, Moretti, C., Dockter, B.A., Falken, L., and Tonneson, J. (2009). Evaluation of Penetrating Sealers for Reinforced Concrete Bridge Decks, *Journal of the Transportation Research Board*, Washington D.C., Paper number 09-0497, pp. 86-96.
- **Mamaghani, I.H.P.** (2008). Seismic Design and Ductility Evaluation of Thin-Walled Steel Bridge Piers of Box Sections, *Journal of the Transportation Research Board*, No. 2050, Washington D.C., pp. 137-142.
- **Mamaghani, I.H.P.** (2006) Analysis of Masonry Bridges: Discrete Finite Element Method, *Journal of Transportation Research Board*, Washington, D.C., ISBN 0309099862, Issue Number 1976, pp. 13-19.
- Aydan, O., Tokashiki, N., and **Mamaghani, I.H.P.** (2005) Modeling and Analysis of Rock Systems by Discrete Finite Element Method. *Journal of Geotechnical Engineering and Surveying, Chishitsu-Chosa*, Japan Society of Civil Engineers, Japan, Vol. 106, pp. 8-15 (in Japanese).
- **Mamaghani, Iraj H.P.**, Aydan, O. and Kajikawa Y. (1999) Analysis of Masonry Structures under Static and Dynamic Loading by Discrete Finite Element Method. *Journal of Structural Mechanics and Earthquake Engineering, JSCE*, Japan, No. 626/I-48, Vol. 16, 75s-86s.
- **Mamaghani, Iraj .H.P.** and Aydan, O. (1999) Discrete Finite Element Method for Analysis of Masonry and Rock Structures. *International Journal of Science and Technology, Scientia Iranica*, Tehran, Iran, Vol. 6, Nos. 3 & 4, 157-164.
- Banno, S., **Mamaghani, Iraj H.P.**, Usami, T., and Mizuno, E. (1998) Cyclic Elastoplastic Large Deflection Analysis of Thin Steel Plates. *Journal of Engineering Mechanics, ASCE*, USA, Vol. 124, No. 4, 363-370.
- **Mamaghani, I.H.P.**, Usami, T., and Mizuno, E. (1997) Hysteretic Behavior of Compact Steel Box Beam-Columns. *Journal of Structural Engineering, JSCE*, Japan, Vol. 43A, 187-194.
- **Mamaghani, I.H.P.**, Usami, T., Mizuno, E. (1996) Cyclic Elastoplastic Large Displacement Behaviour of Steel Compression Members. *Journal of Structural Engineering, JSCE*, Japan, Vol. 42A, 135-145.
- **Mamaghani, I.H.P.**, Usami, T. and Mizuno, E. (1996) Inelastic Large Deflection Analysis of Structural Steel Members Under Cyclic Loading. *Journal of Engineering Structures*, UK, Elsevier Science, 18(9), 659-668.

- **Mamaghani, I.H.P.**, Shen, C., Mizuno, E., and Usami, T. (1995) Cyclic Behavior of Structural Steels. I: Experiments. *Journal of Engineering Mechanics, ASCE, USA*, Vol.121, No.11, 1158-1164.
- Shen, C., **Mamaghani, I.H.P.**, Mizuno, E. and Usami, T. (1995) Cyclic Behavior of Structural Steels. II: Theory. *Journal of Engineering Mechanics, ASCE, USA*, Vol.121, No.11, 1165-1172.
- Usami, T., Suzuki, M., **Mamaghani, I.H.P.**, Ge, H.B. (1995) A Proposal for Check of Ultimate Earthquake Resistance of Partially Concrete Filled Steel Bridge Piers. *Journal of Structural Mechanics and Earthquake Engineering, JSCE, Japan*, No. 525/I-33, 69-82, (In Japanese).

Book Chapters (Peer Reviewed)

- **Mamaghani, I.H.P.** (2016), Chapter 15, Discrete Finite Element Method for Analysis of Masonry Structures, *Computational Modeling of Masonry Structures Using the Discrete Element Method*, Editors: Sarhosis, V., Bagi, K., Lemos, J.V., Milani, G., ISBN13: 9781522502319 & EISBN13: 9781522502326. URL: <http://www.igi-global.com/book/computational-modeling-masonry-structures-using/142213> , Publisher: IGI Global, Academic Book, pp. 393-415.
- **Mamaghani, I.H.P.** (2016), Chapter 17, Application of Discrete Finite Element Method for Analysis of Unreinforced Masonry Structures, *Computational Modeling of Masonry Structures Using the Discrete Element Method*, Editors: Sarhosis, V., Bagi, K., Lemos, J.V., Milani, G., ISBN13: 9781522502319 & EISBN13: 9781522502326. URL: <http://www.igi-global.com/book/computational-modeling-masonry-structures-using/142213> , Publisher: IGI Global, Academic Book, pp. 440-458.
- **Mamaghani, I.H.P.** (2010), Chapter 11: Stability of Angle Members: *Guide to Stability Design Criteria for Metal Structures, 6th edition*, Editor: Ronald Ziemian, John Wiley and Sons, Inc, pp. 493-530.

Contributed in Writing Book Chapter (Peer Reviewed):

- Aydan et al. (2011), Chapter 15: Earthquakes as a Rock Dynamic Problem and their Effects on Rock Engineering Structures, *Advances in Rock Dynamics and Applications*, pages 345-421, Editor: Xhou, Y., Zhao, J., CRC press-500 pages, (**Dr. Mamaghani** contributed in writing chapter 15).

Research Reports (Peer Reviewed)

- **Mamaghan, I.H.P.**, Moretti, C., Dockter, B.A (2007). Application of Sealing Agents in Concrete Durability of Infrastructure Systems, *Research Report*, North Dakota Department of Transportation, April 30, 136 Pages. http://www.dot.nd.gov/divisions/materials/research_project/UND0601final.pdf
- **Mamaghani, I.H.P.**, Moretti, C., Sethre, D., Dockter, B. (2010), Evaluation of Self-Consolidating Concrete (SCC) for Use in North Dakota Transportation Projects,

- Research Report, North Dakota Department of Transportation, June 30, 222 Pages.
http://www.dot.nd.gov/divisions/materials/research_project/und0802final.pdf
- Rayce M., **Mamaghani I.H.P.**, Nikitas, N. (2017), Dynamic façades towards greener energy efficient buildings, The International Research Experience for Students Program to Mitigate Global Climate Change, Final Report, 52 pages.
 - **Mamaghani, I.H.P.**, and Yoshida, H. (2000) Development of High Energy Absorbing Rock Fences Subjected to Impact of Falling Rocks: *ACD Research Report, No. 2000-01*, July, Advanced Constructive Designing, Toyama, Japan.
 - **Mamaghani, I.H.P.**, and Yoshida, H. (2000) Development of A Numerical Method for Analysis of High Energy Absorbing Rock Fences Under Impact of Falling Rocks. *ACD Research Report, No. 2000-02*, July, Advanced Constructive Designing, Toyama, Japan.
 - **Mamaghani, I.H.P.**, Usami, T. and Mizuno, E. (1996) Cyclic Elastoplastic Behavior of Steel Structures: Theory and Experiment. *NUCE Research Report, No. 9601*, March, Nagoya University, Nagoya, Japan.

Dissertations

- **Mamaghani, I.H.P.** (1996) Cyclic Elastoplastic Behavior of Steel Structures: Theory and Experiments. *Doctoral Dissertation*, Department of Civil Engineering, Nagoya University, Nagoya, Japan.
- **Mamaghani, I.H.P.** (1993) Numerical Analysis for Stability of a System of Rock Blocks. *Master of Engineering Dissertation*, Department of Civil Engineering, Nagoya University, Nagoya, Japan.
- **Mamaghani, I.H.P.** (1989) Stability Analysis of Slopes. *B.Sc. of Engineering Dissertation*, Department of Civil Engineering, Istanbul Technical University, Istanbul, Turkey (in Turkish).

Refereed Conferences (Peer Reviewed)

Year: 2021

- Wiriychai, R., **Mamaghani, I.H.P.** (2021). Seismic Resistance and Buckling Strength of Steel Cylindrical Tanks, *Structural Stability Research Council (SSRC) virtual conference*, April 12-16, 2021.
- Wiriychai, R., **Mamaghani, I.H.P.** (2021). Seismic Resistance and Buckling Strength of Cylindrical Steel Liquid Storage Tanks, *The 6th International Conference on Civil Structural and Transportation Engineering (ICCSTE'21)*, Niagara Falls, Canada – May 17-19, 2021, Paper ID 134.
- **Mamaghani, I.H.P.**, Njiru, M. (2021). Recent Advances in Oil and Gas Pipeline Health Monitoring using Machine Learning and Data Analysis Technologies, *The 6th International Conference on Civil Structural and Transportation Engineering (ICCSTE'21)*, Niagara Falls, Canada – May 17-19, 2021, Paper ID 135.
- **Mamaghani, I.H.P.**, Njiru, M., Hasbargen, A., Alishahi, A., McAndrews, B., and Schneider, E. (2021). Evaluation of Precast/Prestressed Concrete Girder Transport Vehicle Stability, *The 6th International Conference on Civil Structural and Transportation Engineering (ICCSTE'21)*, Niagara Falls, Canada – May 17-19, 2021, Paper ID 136.
- **Mamaghani, I.H.P.**, Wiriychai, R. (2021). Seismic Response of LNG Storage Tanks under Earthquake Excitations, *The 6th International Conference on Civil Structural and Transportation Engineering (ICCSTE'21)*, Niagara Falls, Canada – May 17-19, 2021, Paper ID 141.
- Lynes, J., **Mamaghani, I.H.P.** (2021). Strength Properties of Hardwood Timber Species Exposed to Decay and Marine Borer Attack in Tidal Zones, *The 6th International Conference on Civil Structural and Transportation Engineering (ICCSTE'21)*, Niagara Falls, Canada – May 17-19, 2021, Paper ID 145.

Year: 2020

- **Mamaghani, I.H.P.**, (2020). Seismic Design and Ductility Evaluation of Steel Tubular Bridge Piers, *17th World Conference on Earthquake Engineering, 17WCEE*, Sendai, Japan - September 13th to 18th 2020, paper No. C 001114.
- **Mamaghani, I.H.P.**, (2020). Stability Analysis of Masonry Structures under Static and Dynamic Loading using Discrete Finite Element Method, *17th World Conference on Earthquake Engineering, 17WCEE*, Sendai, Japan - September 13th to 18th 2020, paper No. C 001110.

Year: 2019

- Al-Kaseasbeh, Q., and **Mamaghani, I.H.P.** (2019). "Performance of Thin-Walled Steel Tubular Circular Columns with Graded Thickness under Bidirectional Cyclic Loading". In *Structures Congress 2019*. Orlando, FL: American Society of Civil Engineers.

- Al-Kaseasbeh, Q., and **Mamaghani, I.H.P.**, (2019) Thin-Walled Steel Tubular Columns with Uniform and Graded Thickness under Cyclic Loading, *Tenth International Structural Engineering and Construction Conference (ISEC-10)*, May 20-25, 2019, Chicago, Illinois, United States, Interdependence between Structural Engineering and Construction Management Edited by Ozevin, D., Ataei, H., Modares, M. Gurgun, A., Yazdani, S., and Singh, A., Copyright © 2019 ISEC Press, ISBN: 978-0-9960437-6-2, STR-17.
- Roopkumdee, W., and **Mamaghani, I.H.P.**, (2019) Seismic Design and Buckling Strength Evaluation of Liquid-Filled Steel Cylindrical Tanks, *Tenth International Structural Engineering and Construction Conference (ISEC-10)*, May 20-25, 2019, in Chicago, United States, Interdependence between Structural Engineering and Construction Management Edited by Ozevin, D., Ataei, H., Modares, M. Gurgun, A., Yazdani, S., and Singh, A., Copyright © 2019 ISEC Press, ISBN: 978-0-9960437-6-2, STR-18.

Year: 2018

- Roopkumdee, W., **Mamaghani, I.H.P.** (2018) Buckling Strength of Liquid-Filled Steel Cylindrical Tanks under Static and Seismic Loads, *11th National Conference on Earthquake Engineering*, June 25-29, 2018, Los Angeles, California. Paper No. 59.
- Roopkumdee, W., and **Mamaghani, I.H.P.**, (2018) Seismic Design and Buckling Strength Evaluation of Liquid-Filled Steel Cylindrical Tanks, ". In *6th IAJC International Conference (Best Graduate Paper Award)*, Paper ID: 067, October 11-14, Orlando, Florida, ISBN 978-1-60643-379-9.
- Al-Kaseasbeh, Q., and **Mamaghani, I.H.P.** (2018). "Design and Cyclic Elastoplastic Analysis of Graded Thin-Walled Steel Tubular Columns with Enhanced Strength and Ductility". In *6th IAJC International Conference (Best Paper Award)*, Paper ID: 066, October 11-14, Orlando, Florida, ISBN 978-1-60643-379-9.
- Al-Kaseasbeh, Q., and **Mamaghani, I.H.P.** (2018). "Buckling Strength and Ductility Evaluation of Thin-Walled Steel Tubular Columns Under Cyclic Loading". *10th International Conference on Short and Medium Span Bridges*. Quebec City, Canada

Year: 2017

- **Mamaghani, Iraj H.P.** (2017) Stability Evaluation of Steel Braced Frames under Cyclic Loading, *9th International Structural Engineering and Construction Conference (ISEC 9)*, Valencia, Spain, July 24-29, paper No. AAE-1.
- **Mamaghani, Iraj H.P.** (2017) Hysteretic Behavior of Structural Steel: Modelling and Application, *6th International Conference on Engineering Mechanics and Materials, CSCE*, Vancouver, Canada, May 31-June 3, paper No. 584.
- **Mamaghani, Iraj H.P.** (2017) Modelling Cyclic Stress-Strain Behavior of Confined Concrete, *6th International Conference on Engineering Mechanics and Materials, CSCE*, Vancouver, Canada, May 31-June 3, paper No. 585.
- **Mamaghani, Iraj H.P.**, Yoshida, Hiroshi (2017) Design of Reinforced Expanded

Polystyrene Styrofoam Covering Rock-Sheds under Impact of Falling Rock, Transportation Research Board, *First International Roadside Safety Conference*, San Francisco, Paper No. 824-000008.

- **Mamaghani, Iraj H.P.**, Yoshida, Hiroshi (2017) Design and Analysis of High Energy Absorbing Rock Fences, Transportation Research Board (TRB), *First International Roadside Safety Conference*, San Francisco, Paper No. 824-000007.

Year: 2016

- **Mamaghani, I.H.P.** (2016), Discrete Finite Element Method Application for Analysis of Unreinforced Masonry Underground Structures, *Canadian Society for Civil Engineering 2016 Annual Conference and General Meeting*. CSCE, London, Ontario, Canada, June 1-4, Paper ID: 13.
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- **Mamaghani, Iraj H.P.** (1999) Elastoplastic Sectional Behavior of Steel Members under Cyclic Loading. *Proc. of the 4th Int. Conf. on Steel and Aluminum Structures, ICSAS'99*, Espoo, Finland, 20-23 June, pp. 283-290.
- **Mamaghani, Iraj H.P.** (1999) Force Space Plasticity Modeling of the Cyclic Cross-sectional Behavior of Steel Beam-Columns. *Proc. of the 3rd Int. Conf. on Seismology and Earthquake Engineering, SEE-3*, Tehran, Iran, May 17-19, Vol. II, pp. 597-604.
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Year: 1998

- **Mamaghani, Iraj H.P.** and Kajikawa, Y. (1998) Cyclic Inelastic Behavior of Compact Steel Tubular Columns. *Proc. of the Eighth Int. Symp. on Tubular Structures*, 26-28 August, Singapore, pp. 381-389.
- **Mamaghani, I.H.P.**, and Kajikawa Y. (1998) Hysteretic Behavior of Compact Circular Steel Tubular Columns. *Proc. of the 53th Annual Meeting, JSCE*, Japan, I-A102, pp. 204-205.
- **Mamaghani, Iraj H.P.**, Aydan, O., and Kajikawa Y. (1998) Application of the Discrete Finite Element Method to Seismic Analysis of Masonry Structures. *Proc. of the Annual Meeting, JSCE, Chubu Branch*, Japan, I-49, pp. 95-96.

Year: 1997

- Tokashiki, N., **Mamaghani, I.H.P.**, Aydan, O., and Kawamoto, T. (1997) The Stability of a Rock Block on an Incline by Discrete Finite Element Method (DFEM). *Proc. of the Ninth Int. Conf. on Computer Methods and Advances in Geomechanics (IACMAG'97)*, China, pp. 523-528.
- **Mamaghani, Iraj H. P.**, and Kajikawa, Y. (1997) Effect of the Constitutive Law on Cyclic Behavior of Steel Members. *Eight Int. Conf. on Soil Dynamics and Earthquake Engineering (SDEE '97)*, Istanbul, Turkey, July 20-24, pp. 240-241.
- Aydan, O, and **Mamaghani, Iraj H.P.** (1997) Seismic Analysis of Masonry Structures by Discrete Finite Element Method (DFEM). *Eight Int. Conf. on Soil Dynamics and Earthquake Engineering (SDEE '97)*, Istanbul, Turkey, July 20-24, pp. 232-233.
- **Mamaghani, Iraj H. P.**, and Kajikawa, Y. (1997) Cyclic Elastoplastic Behavior of Steel Braces. *7th Int. Conf. on Computing in Civil and Building Engineering, ICCCBE-VII*, Seoul, Korea, August 19-21, Techno-Press, Vol. 1, pp. 319-324.
- **Mamaghani, I.H.P.**, Usami, T., Mizuno, E. (1997) Cyclic Inelastic Behavior of Compact Steel Box Columns. *Proc. of the 5th Int. Colloquium on Stability and Ductility of Steel Structures, SDSS'97*, Edited by T. Usami, July 29-31, Nagoya, Japan, Vol. I, pp. 259-266.
- **Mamaghani, Iraj H.P.**, Usami, T., and Kajikawa, Y. (1997) Cyclic Elastoplastic Large Displacement Analysis of Structural Steel Members. *Fourth Int. Conf. on Civil Engineering*, Sharif University of Technology, Tehran, Iran, May 4-6, Vol. I, pp. 194-203.
- **Mamaghani, Iraj H.P.**, Aydan, O, and Kajikawa Y. (1997) Modeling and Numerical Analysis of Masonry and Rock Structures. *Fourth Int. Conf. on Civil Engineering, Sharif University of Technology*, Tehran, Iran, May 4-6, Vol. I, pp. 78-87.
- **Mamaghani, I.H.P.**, and Kajikawa Y. (1997) Cyclic Inelastic Sectional Behavior of Steel Members. *Proc. of the 52th Annual Meeting, JSCE*, Japan, I-A78, pp. 156-157.
- **Mamaghani, Iraj H.P.**, Aydan, O, and Kajikawa Y.(1997) Modeling and Analysis of Masonry Structures. *Proceeding of the Annual Meeting, JSCE, Chubu Branch*, Japan, I-56, pp. 115-116.

Year: 1996

- **Mamaghani, Iraj H.P.**, Usami, T., Mizuno, E. and Kajikawa Y. (1996) Cyclic Inelastic Large Displacement Analysis of Steel Bridge Piers. *Proc. of the 2nd Int. Conf. on Bridges*, Tehran, Iran, September 9-11, pp. 91-100.
- Aydan, O., **Mamaghani, Iraj H.P.** and Kawamoto, T. (1996) Applications of Discrete Finite Element Method (DFEM) to Rock Engineering Structures. *NARMS'96, 2nd North American Rock Mechanics Symposium Tools and Techniques in Rock Mechanics*, Canada, pp. 2039-2046.
- Mizuno, E., **Mamaghani, Iraj H.P.**, and Usami, T. (1996) Cyclic Large Displacement Analysis Steel Structures with Two-Surface Model in Force Space. *ICASS'96, Int. Conf. on Advances in Steel Structures*, Hong Kong, 11-14 December, Pergamon, Vol. I, pp. 183-188.
- Usami, T., Banno, S., **Mamaghani, Iraj H.P.**, and Mizuno, E. (1996) Thin Steel Plates in Cyclic Compression and Tension. *ICASS'96, Int. Conf. on Advances in Steel Structures*,

Hong Kong, 11-14 December, Pergamon, Vol. II, pp. 691-696.

- **Mamaghani, Iraj H.P.**, Usami, T., and Kajikawa, Y. (1996) Cyclic Elastoplastic Analysis of Steel Frames using Two-Surface Model." *Proc. of the 51th Annual Meeting, JSCE*, 24-25, Japan.

Year: 1995

- Aydan, O., and **Mamaghani, Iraj H.P.** (1996) Ayrik Sonlu Elemanlar Yonteminin Kaya Muhandisligi Yapilarina Uygulamasi. *Rock Mechanics Symposium*, Turkey, 283-290 (in Turkish).
- Usami, T., **Mamaghani, I.H.P.**, Mizuno, E., Banno, S. (1995) Cyclic Inelastic Large Deflection Analysis of Steel Structures. *Proc. of the Int. Conf. on Structural Stability and Design*, Oct. 30- Nov. 1, Sydney, Australia, pp. 407-412.
- Suzuki, T., **Mamaghani, I.H.P.**, Mizuno, E., and Usami, T. (1995) Finite Displacement Analysis of Steel Structures with Two-Surface Plasticity Model in Stress Resultant Space. *Proc. of the 50th Annual Meeting, JSCE*, Japan, Vol.1(A), pp. 110-111.

Year: 1994

- **Mamaghani, I.H.P.**, Baba, S., Aydan O., and Shimizu, Y. (1994) Discrete Finite Element Method for Blocky Systems. *Proc. of the Eighth Int. Conf. on Computer Methods and Advances in Geomechanics (IACMAG, May 22-28, 94)*, Morgantown, West Virginia/USA / Vol. 1, pp. 843-850.
- **Mamaghani, I.H.P.**, Mizuno, E., and Usami, T. (1994) Cyclic Behavior of Structural Steel under Biaxial Nonproportional Loading. *Proc. of the 49th Annual Meeting, JSCE*, Japan, 1(A), pp. 176-177.
- **Mamaghani, I.H.P.**, Mizuno, E., and Usami, T. (1994) Experimental Study on Elasto-Plastic Behavior of Structural Steel Under Biaxial Cyclic Loading. *Proc. of the Annual Meeting, JSCE, Chubu Branch*, Japan, I-12, pp. 23-24.

Invited conference papers:

- **Mamaghani, I.H.P.** (2005) Hysteretic Behavior of Structural Steels Under Biaxial Nonproportional Loading. *McMat 2005, Mechanics and Materials*, June, Baton Rouge, Louisiana, Paper No. 343: p. 81.
- Usami, T., **Mamaghani, I.H.P.**, Mizuno, E. and Shen, C. (1995) Biaxial Cyclic Behavior of Structural Steels under Compression and Torsion. **/Key Note Lecture/** *Dynamic Plasticity and Structural Behaviors, Proc. of Plasticity'95: The Fifth Int. Symp. on Plasticity and its Current Applications*, Edited by: Tanimura, S. and Khan, A. S., July 17-21, Sakai, Osaka, Japan, pp. 471-474.

PROFESSIONAL/INVITED PRESENTATIONS

National/International

- Performance of Thin-Walled Steel Tubular Circular Columns with Graded Thickness under Bidirectional Cyclic Loading". In *Structures Congress 2019*, ASCE, Orlando, FL.
- Thin-Walled Steel Tubular Columns with Uniform and Graded Thickness under Cyclic Loading, *Tenth International Structural Engineering and Construction Conference (ISEC-10)*, May 20-25, 2019, Chicago, Illinois, United States, Interdependence between Structural Engineering and Construction, STR-17.
- Seismic Design and Buckling Strength Evaluation of Liquid-Filled Steel Cylindrical Tanks, *Tenth International Structural Engineering and Construction Conference (ISEC-10)*, May 20-25, 2019, in Chicago, Illinois, United States, Interdependence between Structural Engineering and Construction Management, STR-18.
- Buckling Strength of Liquid-Filled Steel Cylindrical Tanks under Static and Seismic Loads, *11th National Conference on Earthquake Engineering*, June 25-29, 2018, Los Angeles, California.
- Seismic Design and Buckling Strength Evaluation of Liquid-Filled Steel Cylindrical Tanks, *In 6th IAJC International Conference (Best Graduate Paper Award)*, Paper ID: 067, October 11-14, 2018, Orlando, Florida.
- Design and Cyclic Elastoplastic Analysis of Graded Thin-Walled Steel Tubular Columns with Enhanced Strength and Ductility, *In 6th IAJC International Conference (Best Paper Award)*, Paper ID: 066, October 11-14, 2018, Orlando, Florida.
- Buckling Strength and Ductility Evaluation of Thin-Walled Steel Tubular Columns Under Cyclic Loading, *10th International Conference on Short and Medium Span Bridges*. Quebec City, Canada, Summer 2018.
- Stability Evaluation of Steel Braced Frames under Cyclic Loading, *9th International Structural Engineering and Construction Conference (ISEC 9)*, Valencia, Spain, July 24-29, 2017.
- Hysteretic Behavior of Structural Steel: Modelling and Application, *6th International Conference on Engineering Mechanics and Materials, CSCE*, Vancouver, Canada, May 31-June 3, 2017.
- Modelling Cyclic Stress-Strain Behavior of Confined Concrete, *6th International Conference on Engineering Mechanics and Materials, CSCE*, Vancouver, Canada, May 31-June 3, 2017.
- Design of Reinforced Expanded Polystyrene Styrofoam Covering Rock-Sheds under Impact of Falling Rock, Transportation Research Board, *First International Roadside Safety Conference*, San Francisco, 2017.
- Design and Analysis of High Energy Absorbing Rock Fences, Transportation Research Board (TRB), *First International Roadside Safety Conference*, San Francisco, 2017.
- Local Buckling Restraining Behavior of Partially Concrete-filled Steel Tubular (CFST) Bridge Piers under Seismic Loads, *2016 Istanbul Bridge Conference, iBridge 2016*, Istanbul, Turkey, August 8-10, 2016.
- Analysis of Masonry Bridges by Discrete Finite Element Method, *2016 Istanbul Bridge Conference, iBridge 2016*, Istanbul, Turkey, August 8-10, 2016.

- Evaluation of Mix Design and Plastic Properties of Self-Consolidating Concrete, *5th International Materials Specialty Conference*, CSCE, London, ON, Canada, June 1-4, 2016, Paper ID 700.
- Evaluation of Hardened Properties of Self-Consolidating Concrete, *5th International Materials Specialty Conference*, CSCE, London, ON, Canada, June 1-4, 2016, Paper ID 803.
- Design and Analysis of Reinforced Expanded Polystyrene Styrofoam Covering Roof of Rocksheds Subjected to Falling Rock Impact, *5th International Materials Specialty Conference*, CSCE, London, ON, Canada, June 1-4, 2016, Paper ID 802.
- Design and Analysis of Reinforced Expanded Polystyrene Styrofoam Covering Roof of Rocksheds Subjected to Falling Rock Impact, *5th International Materials Specialty Conference*, CSCE, London, ON, Canada, June 1-4, 2016, Paper ID 802.
- Strength and Ductility Evaluation of Thin-Walled Steel Tubular Bridge Piers under Cyclic Multidirectional Loading, *5th International Materials Specialty Conference*, CSCE, London, ON, Canada, June 1-4, 2016, Paper ID 804.
- Discrete Finite Element Method Application for Analysis of Unreinforced Masonry Underground Structures, *2016 CSCE Annual Conference*, London, ON, Canada, June 1-4, 2016, Paper ID 13.
- Analysis of Unreinforced Masonry Arch Bridges by Discrete Finite Element Method, *ASCE, 2015 Structures Congress*, Portland, OR, Paper ID: 258, April 23-25, 2015.
- Cyclic Inelastic Finite Element Analysis and Ductility Evaluation of Steel Braced Frames, *ASCE, 2015 Structures Congress*, Portland, OR, Paper ID: 250, April 23-25, 2015.
- Discrete Finite Element Method Application for Analysis of Unreinforced Masonry Underground Structures, *Transportation Research Board, TRB 94th Annual Meeting*, Washington, D.C., Paper ID: 15-4336, January 11-15, 2015.
- Stability Evaluation of Thin-Walled steel Tubular Bridge Piers under Cyclic Multidirectional Loading, *Transportation Research Board, TRB 94th Annual Meeting*, Washington, D.C., Paper ID: 15-4359, January 11-15, 2015.
- Cyclic Elastoplastic Analysis and Ductility Evaluation of Thin-walled Steel Box Columns, *4th International Structural Specialty Conference*, Halifax-Canada, Paper ID: CST-165, May 28-31, 2014.
- Stability Analysis of Slopes by Discrete Finite Element Method, *Canadian Society for Civil Engineering 2014 Annual Conference and General Meeting*. CSCE, Hlifax, Canada, Paper ID: 195, May 28-31, 2014.
- Cyclic Elastoplastic Analysis of thin-walled Steel tubular columns and Frames, *Istanbul Bridge Conference*, Istanbul, Turkey, Paper ID 61, August 11-13, 2014.
- Seismic Design and Ductility Evaluation of Thin-walled Steel Box Columns with Enhanced Energy Dissipating Mechanisms, *Istanbul Bridge Conference*, Istanbul, Turkey, paper ID 62, August 11-13, 2014.
- Cyclic Elastoplastic Analysis and Hysteretic Behavior of Thin Steel Plates, *7th European Conference on Steel and Composite Structures, EuroSteel2014*, Napoli, Italy, September 10-12, 2014, Paper ID: 460.
- Seismic Design and Ductility Evaluation of Steel Bridge Piers, *SMSB 2014 – the 9th International Conference on Short and Medium Span Bridges*, paper ID # 172.

- Analysis of Historical Masonry Bridges by Discrete Finite Element Method, *SMS 2014 – the 9th International Conference on Short and Medium Span Bridges*, paper ID # 173.
- Analysis of Masonry Bridges under Static and Dynamic Loading by Discrete Finite Element Method, *9th International Masonry Conference*, International Masonry Society, Guimarães, Portugal, July 7-9, 2014.
- Seismic Design of partially Concrete-Filled Steel Box Bridge Piers, Transportation Research Record: January 12-16, 2014, Washington DC.
- Design and Analysis of Reinforced Expanded Polystyrene Styrofoam for Use Under Falling Rock Impact, Transportation Research Record: January 12-16, 2014, Washington DC.
- Seismic Retrofit and Ductility Enhancement of Thin-Walled Steel Tubular Bridge Piers, Transportation Research Record: January 13-17, 2013, Washington DC.
- Design and Analysis of High-Energy-Absorbing Rockfall Barrier Fence System, Transportation Research Record: January 13-17, 2013, Washington DC.
- Strength and Ductility Evaluation of Steel Tubular Bridge Piers under Constant Axial and Cyclic Bidirectional Lateral Loading, Structures Congress, Structural Engineering Institute (SEI) of the American Society of Civil Engineers (ASCE), May 2-4, 2013, Pittsburgh, PA.
- Hysteretic Inelastic Behavior of Thin Steel Plates, 3rd Specialty Conference on Engineering Mechanics and Materials, CSCE, May 29-June 1, 2013, Montreal, Canada.
- Discrete Finite Element Method for Analysis of Underground Structures, Canadian Society for Civil Engineering 2013 Annual Conference and General Meeting. CSCE, May 29-June 1, 2013, Montreal, Canada.
- Design of Reinforced Expanded Polystyrene Styrofoam Covering Rock-sheds Under Impact of Falling Rock, Canadian Society for Civil Engineering 2013 Annual Conference and General Meeting. CSCE, May 29-June 1, 2013, Montreal, Canada.
- Cyclic Behavior and Ductility Evaluation of Thin-Walled Stiffened Steel Box Bridge Piers, Transportation Research Record: January 22-26, 2012, Washington DC.
- Seismic Retrofit of Thin-Walled Steel Tubular Bridge Piers, ASCE, 2012 Structures Congress, March 29, Chicago, Illinois.
- Innovative Performance-Based Seismic Design Methodologies for American Bridge Piers using Partially Concrete-Filled Steel Tubular Columns, ASCE Committee on Steel Bridges, March 30, 2012, Chicago, Illinois.
- Cyclic Elastoplastic analysis and ductility Evaluation of Steel Braces, Structural Stability Research Council, May 11-14, 2011, Pittsburgh, PA.
- Cyclic Behavior and Ductility Evaluation of Thin-walled Stiffened Steel Box Columns, Structural Stability Research Council, May 11-14, 2011, Pittsburgh, PA.
- Cyclic Behavior and Ductility Evaluation of Thin-Walled Stiffened Steel Box Bridge Piers, Transportation Research Record: January 22-26, 2012, Washington DC.
- Cyclic Elastoplastic Finite Element Analysis and Stability Evaluation of Steel Braced Frames, Structural Stability Research Council, May 13-16, 2010, Orlando, Florida.
- Stability Evaluation of Thin-Walled Steel Tubular Columns under Cyclic Multidirectional Loading, Structural Stability Research Council, May 13-16, 2010, Orlando, Florida.

- Ductility Evaluation of Steel Tubular Columns Subjected to Constant Axial and Cyclic Bidirectional Lateral Loading, SEI 2010 Structures Congress, ASCE, May 12-14, 2010, Orlando, Florida, Paper # 414.
- Cyclic Elastoplastic Large Displacement Analysis of Cold-Formed Steel Box Columns under Combined Axial and Bidirectional Lateral Loading, *Cold-formed Steel Structures-2010, 20th International Specialty Conference*, November 3-4, St. Louis, Missouri.
- Application of Discrete Finite Element Method for Stability Analysis of Slopes, *Transportation Research Board*, Washington D.C., January 11, 2010, Paper number 10-2318.
- Seismic Design of Steel Tubular Bridge Piers, *Transportation Research Board*, Washington D.C., January 11, 2010, Paper number 10-0197.
- Seismic Performance Evaluation of Steel Tubular Columns under Cyclic Bidirectional Loading, *13th international symposium on tubular structures (ISTS 13), Tubular Structures XIII*, December 15-17, 2010, Hong Kong, Paper ID 16.
- Elastoplastic Analysis of Steel Tubular Braces, *13th international symposium on tubular structures (ISTS 13), Tubular Structures XIII*, December 15-17, 2010, Hong Kong, Paper ID 17.
- Performance Evaluation of Penetrating Sealers for Concrete Bridge Deck Protection, *Transportation Research Board*, Washington D.C., January 11-15, 2009.
- Stability Evaluation of Thin-Walled Steel Tubular Columns Subjected to Cyclic Bidirectional Loading, *Structural Stability Research Council*, Phoenix, Arizona, April-5, 2009.
- Inelastic Analysis and Ductility Evaluation of Partially Concrete-Filled Steel Tubular Columns under Cyclic Loading, *Structural Stability Research Council*, Phoenix, Arizona, and April-5, 2009.
- Seismic Design and Ductility Evaluation of Partially Concrete-Filled Steel Box Columns, *19th A&C Conference, SEI 2009 Structures Congress, ASCE*, Austin, Texas, April 30-May 2, 2009.
- Cyclic Inelastic Large Displacement Analysis and Stability Evaluation of Steel Braced Frames, *SEI 2009 Structures Congress, ASCE*, Austin, Texas, April 30-May 2, 2009.
- Inelastic Behavior of Structural Steels Under Cyclic Biaxial Nonproportional Loading, *SEI 2009 Structures Congress, ASCE*, Austin, Texas, April 30-May 2, 2009.

State/Local

- Analysis of Unstiffened and Stiffened Liquid –Filled Steel Cylindrical Tanks under Earthquake Excitation, *UND Scholarly Forum*, Spring 2020.
- Mix Design and Plastic Properties of Self-Consolidating Concrete, *UND Scholarly Forum*, School of Graduate Studies, March 1-2, 2016.
- Hardened Properties of Self-Consolidating Concrete, *UND Scholarly Forum*, School of Graduate Studies, March 1-2, 2016.
- Local Buckling Restraining Behavior of Concrete-filled Steel Tubular (CFST) Columns under Seismic Loads, *UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 10-11, 2015.

- Stability and Ductility Evaluation of Thin-walled Circular Steel Bridge Piers under Cyclic Multidirectional loading, *UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 10-11, 2015.
- Ductility Evaluation of Steel Bridge Piers with Pipe Sections, *UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 5-6, 2014.
- Ductility Evaluation of Thin-walled Steel Structures, *UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 5-6, 2014.
- Cyclic Behavior of Thin-Walled Stiffened Rectangular Steel Columns with In-filled Concrete, *2013 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 6, 2013.
- Design and Stability Evaluation of Wind Turbine Steel Towers under Static and Seismic loading, *2013 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 2013.
- Comparison between ACI and AISC for Concrete-Filled Tubular Columns, *2013 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 2013.
- Design of Rock-Sheds under Falling Rock Impact, *2013 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, March 2013.
- Design of Rock-Sheds under Falling Rock Impact, *3rd UND, NDSU & SDSU Engineering Seminar*, April 23, 2013, SDSU, South Dakota.
- Seismic Design of Concrete-Filled Steel Tubular Columns, *2012 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, February 27-28, Paper No. P-46, <http://graduateschool.und.edu/learn-more/sf12-posterassignments>.
- Seismic Performance Evaluation of Steel Tubular Columns, *2012 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, February 27-28, Paper No. P-47, <http://graduateschool.und.edu/learn-more/sf12-posterassignments>.
- Stability and Seismic Performance Evaluation of Stiffened Thin-walled Steel Tubular Columns, *2nd Annual Engineering Research Summit*, A Conference for Engineering Faculty from NDSU, SDSU and UND, April 23, 2012, Grand Forks, ND.
- Stability Evaluation of Steel braced Frames under Cyclic Loading, *2010 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, paper No. O-15, March 2010.
- Mix Design and Performance Evaluation of Self-Consolidating Concrete, *2010 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, paper No. O-17, March 2010.
- Performance Evaluation of Free-Standing Wind Turbine Steel Tubular towers, *2010 UND Scholarly Forum*, University of North Dakota, Grand Forks, ND, paper No. O-19, March 2010.
- Evaluation of Self-Consolidating Concrete (SCC) Using Slag Cement, University of North Dakota, *The Graduate School 2009 Scholarly Forum*, March 11-12, 2009.
- Evaluation of Self-Consolidating Concrete (SCC) Using Slag Cement, University of North Dakota, *The Graduate School 2009 Scholarly Forum*, March 11-12, 2009.
- Cyclic Bidirectional Elastoplastic Analysis of Steel Tubular Columns, University of North Dakota, *The Graduate School 2009 Scholarly Forum*, March 11-12, 2009.
- Evaluation of Self-Consolidating Concrete for Use in North Dakota Transportation Systems, University of North Dakota, *The Graduate School 2009 Scholarly Forum*, March 11-12, 2009.

- Analysis of Urban Transport Construction Using GIS and Neural Networks, University of North Dakota, *The Graduate School 2009 Scholarly Forum*, March 11-12, 2009.
- Development of High Early Strength Self-Consolidating Concrete for Precast/Prestressed Applications, University of North Dakota, *The Graduate School 2009 Scholarly Forum*, March 11-12, 2009.
- Ductility Evaluation of Partially Concrete-Filled Steel Tubular Bridge Piers, University of North Dakota, *The Graduate School 2009 Scholarly Forum*, March 11-12, 2009

Workshops on SCC Technology Transfer

Organized two successful workshops at state level on Self Consolidating Concrete (SCC):

- Bismarck, April 27, 2010, attended over 50 engineers across the North Dakota.
- Fargo, April 20, 2010, attended over 50 engineers across the North Dakota.

Invited conference papers (Keynote Lectures)

- **Mamaghani, I.H.P.** (2005) Hysteretic Behavior of Structural Steels Under Biaxial Nonproportional Loading. *McMat 2005, Mechanics and Materials*, June, Baton Rouge, Louisiana, Paper No. 343: p. 81.
- Usami, T., **Mamaghani, I.H.P.**, Mizuno, E. and Shen, C. (1995) Biaxial Cyclic Behavior of Structural Steels under Compression and Torsion. **/Keynote Lecture/** *Dynamic Plasticity and Structural Behaviors, Proc. of Plasticity'95: The Fifth Int. Symp. on Plasticity and its Current Applications*, Edited by: Tanimura, S. and Khan, A. S., July 17-21, Sakai, Osaka, Japan, pp. 471-474.

GRANTS AND CONTRACTS

Most Recent Grants Submitted:

- **Acquisition of Major Testing Equipment for Structural Engineering Laboratory, Department of Civil Engineering, College of Engineering and Mines**
PI: Iraj Mamaghani
Co-PIs: Sattar Dorafshan
Agency: NSF-Major Research Instrumentation Program (MRI) for 2020, (NSF 18-513)
Total budget: \$563,447
Submitted on: 5/09/2020
Status: Submitted as a white paper for UND Evaluation. If passes UND Screening, the final proposal will be submitted to NSF.
- **Development of New and emerging technologies to improve leak detection and leak prevention in oilfield gathering pipelines**
PI: Iraj Mamaghani
Co-PI: Vamegh Rasuli
Agency: Pipeline Integrity Intelligent Program (iPIPE)
Total budget: \$154,099
Submitted 9/24/2020
Duration: 8 Months
Status: pending
- **Smart Rail Isolation for Protecting a Rail Against Multi-Hazard Longitudinal Thermal/Seismic Stresses**
PI: Iraj Mamaghani
Co-PI: Sattar Dorafshan
Agency: FRA-TR-004 Innovative Methods for Measuring Longitudinal Rail Stress
Total budget: \$480,000
Submitted on: 5/22/2020
Duration: 36 months
Status: pending
- **Railroad Substructure Moisture Measurement and Monitoring Using Multispectral Imagery**
PI: Sattar Dorafshan
Co-PI: Iraj Mamaghani, Raj Bridgelall, Denver Tolliver
Agency: FRA-TR-006 Assessment of the Influence of Drainage on Track Support
Total budget: \$413,000
Submitted on: 5/22/2020
Duration: 36 months
Status: pending
- **Continuously Welded Rails (CWR) with Smart Rail Isolators for Protecting against Multi-Hazard Longitudinal Thermal Stress and Seismic Loads**
PI: Iraj Mamaghani
Co-PI: Sattar Dorafshan, Raj Bridgelall
Agency: Transportation Research Board (TRB): the Rail Safety IDEA program
Total budget: \$143,854

Submitted on: 9/15/2020

Duration: 24 months

Status: pending

- **Increasing Safety of Railroads through Multi-spectral imagery and Artificial Intelligence**

PI: Sattar Dorafshan

Co-PI: Iraj Mamaghani, Raj Bridgelall

Agency: Transportation Research Board (TRB): the Rail Safety IDEA program

Total budget: \$148,877

Submitted on: 9/15/2020

Duration: pending

- **Characterization of the Air-Void System for North Dakota Department of Transportation Durable Highway Concrete**

PI: Iraj Mamaghani

Co-PI: Sattar Dorafshan

Agency: North Dakota Department of Transportation (NDDOT), 2020 Transportation Innovation Program (TRIP)

Total budget: \$242,796

Submitted on: 6/15/2020

Duration: 36 months

Status: Not Funded

- **Developing digital twins of ancillary structures in North Dakota**

PI: Sattar Dorafshan

Co-PI: Iraj Mamaghani, Raj Bridgelall

Agency: North Dakota Department of Transportation (NDDOT), 2020 Transportation Innovation Program (TRIP)

Total budget: \$154,614

Submitted on: 6/15/2020

Duration: 30 months

Status: Not Funded

- **Buckling Restrained Brace Frame Columns Under High Axial Loads and Rotation/bending Demands**

Agency: 2020 AISC Milek Fellowship: American Institute of Steel Construction (AISC)

Submission date: 9/15/2019

Amount requested: \$200,000

Status: Not Funded

- **Proposing novel, applicable methods to mitigate the problems associated with sand utilization in hydraulic fracturing operations**

PI: Iraj H.P. Mamaghani

Agency: University of North Dakota Post-Doctoral Funding Program

Submission date: November 15, 2019

Duration: 3 years

Amount requested: \$45,000

Status: Not Funded

- **Evolvement of Bio-Material for Strengthening and Self-Healing Structural Concrete**

PI: Dr. Iraj H.P. Mamaghani

Agency: University of North Dakota Post-Doctoral Funding Program

Submission date: November 15, 2019

Duration: 3 years

Amount requested: \$45,000

Status: Not Funded

- **Bond Strength Evaluation of Self-Consolidating Concrete**
PI: Dr. Iraj H.P. Mamaghani
Agency: Precast/Prestressed Concrete Institute: 2019 Dennis R. Mertz Bridge Research Fellowship
Submission date: 08-16-2019
Duration: 1 year
Amount requested: \$40,000
Status: Not Funded
- **Innovative Seismic Design of Thin-Walled Steel Tubular Columns with Enhanced Ductility and Energy Dissipating Mechanisms**
PI: Iraj H.P. Mamaghani
Agency: NSF- Division of Civil, Mechanical, & Manufacturing (CMMI- [1762264](#))
Duration of the Project: 3 years
Submission date: September 20, 2017
Amount requested: \$299,630.00
Status: Not Funded.
- **Acquisition of Major Testing Equipment for Structural Engineering Laboratory at College of Engineering and Mines**
Agency: Major Research Instrumentation Program (NSF 15-504)
PI: Mamaghani, Iraj H.P.
Duration: 1 year
Submitted: for review by UND: on 9/14/2017
Requested amount: \$421,085.00
Status: Not Selected by UND for Submission to NSF
- **Unsaturated Soil Testing System**
Agency: Major Research Instrumentation Program (NSF 15-504)
PI: Mamaghani, Iraj H.P.
Duration: 1 year
Submitted: for review by UND on 9/14/2017
Requested amount: \$48,000.00
Status: Not Selected by UND for Submission to NSF
- **Proposing novel, applicable methods to mitigate the problems associated with sand utilization in hydraulic fracturing operations**
Agency: North Dakota Department of Commerce Research North Dakota (RND) program
PI: Mamaghani, Iraj H.P.
Co-PI: I-Hsuan Ho
Duration: 18 Months
Submitted: for review by UND on 11/17/2017
Requested amount: \$152,118.00
Status: Not Funded
- **Geothermal Hot Water for Sustainable Snow-Melting System for Transportation**

Infrastructures in Western North Dakota Utilizing Co-Production Well

Agency: North Dakota Department of Commerce Research North Dakota (RND) program

Co-PI: Mamaghani, Iraj H.P.

PI: I-Hsuan Ho

Duration: 2 years

Submitted: for review by UND on 11/17/2017

Requested amount: \$100,000.00

Status: Not Funded

- **Experimental and Analytical Study of Friction Stir Processing**

Agency: UND Research Seed Program: Post-Doctoral Program 2017-2018:

PI: Mamaghani, Iraj H.P.

Duration: 1 year

Submitted: for review by UND on 11/01/2017

Requested amount: \$42,000.00

Status: Not Funded

- Modelling and Seismic Design of Partially Concrete-Filled Thin-Walled Steel Tubular Bridge Piers with Enhanced Energy Dissipating Mechanisms. Submitted to the National Science Foundation (NSF): CMMI-Mechanics of Materials and Structures (MoMS), NSF Proposal Number: CMMI-1663200, September 2016. **PI: Iraj Mamaghani.**
- Seismic Design of Partially Concrete-Filled Thin-Walled Steel Tubular Bridge Piers with Enhanced Energy Dissipating Mechanisms. Submitted to the National Science Foundation (NSF): CMMI- Engineering for Natural Hazards (ENH), NSF Proposal Number: CMMI-1632750, February 2016. **PI: Iraj Mamaghani.**
- Seismic Design of Steel Tubular Bridge Piers with Enhanced Energy Dissipating Mechanisms. The UND School of Graduate Studies, Summer 2015. **PI: Iraj Mamaghani.**
- Entrained Air Void System for Durable Highway Concrete, Submitted to the National Cooperative Highway Research Program (NCHRP), Project 18-17, March 2015, **PI: Iraj Mamaghani.**
- Seismic Design of Partially Concrete-Filled Thin-Walled Steel Tubular Bridge Columns with Enhanced Energy Dissipating Mechanisms. Submitted to the National Science Foundation (NSF): CMMI-Mechanics of Materials and Structures (MoMS), NSF Proposal Number: CMMI-1536582, February 2015. **PI: Iraj Mamaghani.**
- Seismic Design of Partially Concrete-Filled Thin-Walled Steel Tubular Bridge Columns with Enhanced Energy Dissipating Mechanisms. Submitted to the National Science Foundation (NSF): CMMI- Division of Civil, Mechanical, & Manufacturing, NSF Proposal Number: CMMI-1500063, October 2014. **PI: Iraj Mamaghani.**
- Seismic Design of Bridge Columns with Improved Energy Dissipating Mechanisms. Submitted to the National Cooperative Highway Research Program (NCHRP), Project 12-101, January 2014. **PI: Iraj Mamaghani.**
- Performance-based Seismic Design of Bridge Columns with Improved Energy Dissipating Mechanisms, The UND School of Graduate Studies, December 2013. **PI: Iraj Mamaghani**

- Development of Advanced Cyclic Elastoplastic Finite-Element Analysis and Seismic Design Methodologies for Concrete-Filled Steel Tubular Columns. Submitted to the National Science Foundation (NSF): CMMI- Hazard Mitigation, NSF Proposal Number: CMMI-1361777, September 2013. **PI: Iraj Mamaghani.**
- Development of Constitutive Law and Ductility Evaluation of High- Performance Structural Steels under Cyclic Loading. Submitted to UND/NDSU/SDSU Inter-institutional Collaboration Fund, May 2013. **Co-PI: Iraj Mamaghani.**
- Development of an Experimental-Computational Model to Estimate Residual Stress in Thermal Sprayed Coatings. Submitted to UND/NDSU/SDSU Inter-institutional Collaboration Fund, May 2013. **Co-PI: Iraj Mamaghani.**
- Seismic Design and Ductility Evaluation of Steel Structures. Submitted to University of North Dakota, Faculty Seed Money Grant, February 2013. **PI: Iraj Mamaghani.**
- Development of a New Graduate Course Titled “Theory of Plasticity”. Submitted to University of North Dakota, Office of Instructional Development, 2013 Summer Instructional Development Projects (SIDP), February 2013. **PI: Iraj Mamaghani.**
- Development of cyclic FEM analysis and seismic design methodologies for concrete-filled steel tubular columns. Submitted to the National Science Foundation (NSF): CMMI- Hazard Mitigation, NSF Proposal Number: CMMI- [1232827](#), February 2012. **PI: Iraj Mamaghani.**
- A Mechanistic-Empirical Model for Top-Down Cracking of Asphalt Pavement Layers. Submitted to the National Cooperative Highway Research Program (NCHRP), Transportation Research Board, NAS-NRC, NCHRP 01-52, April 2012, **Co-PI: Iraj Mamaghani.**
- Best Field Practices for the Use of Self-Consolidating Concrete in Nevada DOT Projects. Submitted to the Nevada Department of Transportation (NDOT), State Planning and Research (SPR), May 2012. **PI: Iraj Mamaghani.**
- Cyclic Inelastic Analysis and Seismic Design Methodologies for Steel Tubular Columns. Submitted to the American Institute of Steel Construction (AISC), September 2012. **PI: Iraj Mamaghani.**
- Seismic Design and Ductility Evaluation of Steel Structures. Submitted to University of North Dakota, Faculty Seed Money Grant, December 2012. **PI: Iraj Mamaghani.**
- Development of cyclic FEM analysis and seismic design methodologies for concrete-filled steel tubular columns. Submitted to the National Science Foundation (NSF): CMMI- Hazard Mitigation, NSF Proposal Number: CMMI-1162574, October 2011. **PI: Iraj Mamaghani.**
- Seismic Design and Ductility Evaluation of Steel Structures. Submitted to University of North Dakota, Faculty Seed Money Grant, December 2011. **PI: Iraj Mamaghani.**
- Performance-based Seismic Design and Ductility Evaluation of Steel Tubular Structures. The UND School of Graduate Studies, Summer 2011. **PI: Iraj Mamaghani**
- Development of cyclic FEM analysis and seismic design methodologies for concrete-filled steel tubular columns. Submitted to the National Science Foundation (NSF): CMMI- Hazard Mitigation, NSF Proposal Number: CMMI-1100861, October 2010. **PI: Iraj Mamaghani.**

- Evaluation of Self-Consolidating Concrete (SCC) for Use in North Dakota Transportation Projects, Submitted to the North Dakota Department of Transportation, \$ 47,450, April 2008-June 2010. **PI: Iraj Mamaghani.**
- Cyclic Elastoplastic Analysis and Seismic Design Methodologies for Concrete-filled Steel Tubular Columns. Submitted to the American Institute of Steel Construction (AISC), September 2010. **PI: Iraj Mamaghani.**
- Performance-based Seismic Design and Ductility Evaluation of High Strength Steel Braced Frame Structures. Submitted to the UND School of Graduate Studies, Summer 2010. **PI: Iraj Mamaghani.**
- Assessment of Mitigating Highway Bridge Approach Settlements in North Dakota. Submitted to the North Dakota Department of Transportation (NDDOT), November 2010. **PI: Iraj Mamaghani.**
- Investigation of Fiber-Reinforced Self-Consolidating Concrete (FR-SCC) for Use in North Dakota Transportation Projects. Submitted to the North Dakota Department of Transportation (NDDOT), November 2010. **PI: Iraj Mamaghani.**
- Development of strength and ductility evaluation and seismic design methodologies for thin-walled stiffened steel tubular columns, Japan Scientific Foundation, October , 2010, **Co-PI: Iraj Mamaghani.**
- Bond Strength Evaluation of Evaluation of Sustainable Self-Consolidating Concrete (SCC) Using Slag Cement and Fly Ash, Submitted to the Prestressed Concrete Institute (PCI) Research Fellowship, May 2010. **PI: Iraj Mamaghani.**
- Laboratory Study of High-Performance Curing Compounds for Concrete Pavement. Submitted to the Wisconsin Department of Transportation, Wisconsin Highway Research Program (WHRP), March 2010. **PI: Iraj Mamaghani.**
- Bond Strength Evaluation of Sustainable Self-Consolidating Concrete. Submitted to the Prestressed Concrete Institute (PCI) Research Fellowship, December 2009. **PI: Iraj Mamaghani.**
- Evaluation of Self-Consolidating Concrete (SCC) Using Slag Cement and Glass Fiber Reinforced Plastic Waste. Submitted to the Prestressed Concrete Institute (PCI) Research Fellowship, December 2009. **PI: Iraj Mamaghani.**
- Bond Strength Evaluation of Evaluation of Sustainable Self-Consolidating Concrete (SCC) Using Slag Cement and Fly Ash. Submitted to the Prestressed Concrete Institute (PCI) Research Fellowship, December 2009. **PI: Iraj Mamaghani.**
- Climate Change and the Highway System: Impacts and Adaptation Approaches. Submitted to the National Cooperative Highway Research Program (NCHRP), Transportation Research Board, NAS-NRC, NCHRP Project 20-83(05), June 2009, **Co-PI: Iraj Mamaghani.**
- Cyclic Elastoplastic Analysis and Seismic Design Methodologies for Partially Concrete-filled Structural Systems. Submitted to the National Science Foundation (NSF): CMMI-Hazard Mitigation, NSF Proposal Number: CMMI-0800901, October 2008. **PI: Iraj Mamaghani.**
- Experimental and Analytical Studies on Seismic Design and Ductility Evaluation of Steel

Structures. Submitted to University of North Dakota, Faculty Seed Money Grant, February 2009. **PI: Iraj Mamaghani.**

- Performance-based Seismic Design and Ductility Evaluation of Steel Framed Structures. Submitted to the UND School of Graduate Studies, Summer 2008. **PI: Iraj Mamaghani.**
- Evaluation of Sustainable Self-Consolidating Concrete (SCC) Using Slag Cement and Fly Ash. Submitted to the Prestressed Concrete Institute (PCI) Research Fellowship, December 2008. **PI: Iraj Mamaghani.**
- Evaluation of Self-Consolidating Concrete (SCC) Using Slag Cement. Submitted to the Prestressed Concrete Institute (PCI) Research Fellowship, December 2008. **PI: Iraj Mamaghani.**
- Development of High Early Strength Self-Consolidating Concrete for Precast/Prestressed Applications. Submitted to the North Dakota Department of Transportation (NDDOT), November 2008. **PI: Iraj Mamaghani.**

Grants Awarded

- Development of strength and ductility evaluation and seismic design methodologies for thin-walled stiffened steel tubular columns, Japan Scientific Foundation, \$50,000, October 1, 2011- September 30, 2016. **Co-PI: Iraj Mamaghani.**
- Seismic Design and Ductility Evaluation of Steel Structures. Submitted to University of North Dakota, Faculty Seed Money Grant, \$34,585, February 2013-September 2015. **PI: Iraj Mamaghani.**
- Seismic Design of Steel Tubular Bridge Piers with Enhanced Energy Dissipating Mechanisms. The UND School of Graduate Studies, \$7000, Summer 2015. **PI: Iraj Mamaghani.**
- Performance-based Seismic Design of Bridge Columns with Improved Energy Dissipating Mechanisms, The UND School of Graduate Studies, \$7000, Summer 2013. **PI: Iraj Mamaghani.**
- Seismic Design and Ductility Evaluation of Steel Structures. Submitted to University of North Dakota, Faculty Seed Money Grant, \$40,000, December 2012. **PI: Iraj Mamaghani.**
- Performance-based Seismic Design and Ductility Evaluation of Steel Tubular Structures. The UND School of Graduate Studies, \$7000, Summer 2011. **PI: Iraj Mamaghani**
- Evaluation of Self-Consolidating Concrete (SCC) for Use in North Dakota Transportation Projects, Submitted to the North Dakota Department of Transportation, \$ 47,450, April 2008-June 2010. **PI: Iraj Mamaghani.**
- Performance-based Seismic Design and Ductility Evaluation of Steel Framed Structures University of North Dakota, Summer Professorship, Summer 2008, \$6,000, **PI: Iraj Mamaghani.**
- Application of Sealing Agents in Concrete Durability of Infrastructure Systems, Submitted to the North Dakota Department of Transportation, \$ 48,000, August 2004-December 2006. **PI: Iraj Mamaghani.**

PROFESSIONAL ASSOCIATIONS, SERVICES, AND OFFICES HELD

National Committees:

- Member of SSRC TG 02-Stability of Steel Members
- Member of SSRC TG 03-Stability of Steel Systems, Especially Frames
- Member of SSRC TG 04-Stability of Metal Bridges & Bridge Components
- Member of SSRC TG 05-Thin-Walled Structures
- Member of SSRC TG 06-Extreme Loads: Stability under Extreme Loads
- Member of ASCE Compression and Flexural Committee
- Member of ASCE Steel Bridge Committee
- Member of ASCE Committee on Composite Construction
- Member of ASCE Engineering Mechanics (Inelastic) Committee
- Member of TRB: Steel Bridge Design Committee
- Served as the chair and member of SSRC Task Group 26-Stability of Angle Members, 2009-2013.

PROFESSIONAL EDUCATION/CONSULTANT ACTIVITIES AND SERVICES

Synergistic Activities:

- Currently serving as a member of international advisory committee for the 6th *International Conference on Civil Structural and Transportation Engineering (ICCSTE'21)*, Niagara Falls, Canada – May 17-19, 2021.
- Served as a member of editorial board of American Journal of Civil Engineering, 2019-present.
- Serving as the member of the International Scientific Committee of the *International Structural Specialty Conference, 2012-present*.
- Served as a member of international advisory committee, *Journal of American Transaction Engineering & Applied Sciences (ATEAS)*, Fall 2011-Present.
- Served as a member of international advisory committee, 6th *International Conference on Engineering Mechanics and Materials, CSCE*, Vancouver, Canada, May 31-June 3, 2017.
- Served as a member of international advisory committee, *Istanbul Bridge Conference 2016*, Istanbul, Turkey, Canada, August 2016.
<http://2016.istanbulbridgeconference.org/committees/>
- Served as a member of international advisory committee, 5th *International Structural Specialty Conference*, London-Ontario, Canada, June 2016.
- Served as a member of international advisory committee, 4th *International Structural Specialty Conference*, Halifax-Canada, Canada, May 2014.
- Served as the member of the International Scientific Committee of the 3rd *International Structural Specialty Conference*, Edmonton, Alberta, Canada, June 2012.

Journal Reviewer:

Dr. Mamaghani, is reviewer for the following Journals:

- Journal of Structural Engineering (ASCE).
- Journal of Engineering Mechanics (ASCE).

- Journal of Bridge Engineering (ASCE).
- Journal of American Transaction Engineering & Applied Sciences (ATEAS).
- International Journal of Applied Science and Technology (IJAST).
- Canadian Journal of Civil Engineering (CSCE).
- Journal of Engineering Structures
- Journal of Thin-walled Structures
- Journal of Metals: DMPI, and
- International Journal of Science and Technology

Professional Association Membership:

- ASCE Engineering Mechanics Institute (EMI) Committee on Modelling Inelasticity and Multiscale Behavior
- Member of the American Society of Civil Engineers (ASCE).
- Member of the Structural Engineering Institute (SEI).
- ASCE/ND Chapter: Membership Committee
- Member of the American Institute of Steel Construction (AISC).
- Member of the Structural Stability Research Council (SSRC).
- Transportation Research Board (TRB).
- Member of the Professional Engineering of Ontario, PEO, (*P.Eng.*).
- Member of the Canadian Society of Civil Engineers (CSCE).
- Member of the Canadian Association for Earthquake Engineering (CAEE).
- Member of the Member Japan Society of Civil Engineers (JSCE).

NSF-Panel Reviewer:

- Reviewed eight proposals for NSF-CMS (Civil and Mechanical Systems) program awards and attended NSF Panel, (Panel ID: P06726-S06) in Washington, D.C., February 2006.
- Reviewed ten proposals for NSF-NEES program group awards and attended NSF Panel, (Panel ID: NEESRSGST2) in Washington, D.C., June 2005

UNIVERSITY, COLLEGE, AND DEPARTMENTAL SERVICES

Civil Engineering Department Services:

- Served as the Chester Fritz Library Leisner for Civil Engineering Department, 2018-present.
- Member of the Civil Engineering Department Tenure and Promotion Committee. 2008-Present.
- Member of the Civil Engineering Department Faculty Search Committee. 2002-Present
- Member of Civil Engineering Department ABET Committee. 2002-Present
- Member of the Faculty Advisor for ASCE Student's Chapter in Civil Engineering Department, 2004-2012.

College of Engineering and Mine (CEM) Services:

- Member of the UND's CEM Academic Program (curriculum) committee, 2018-Present.
- Member of the College of Engineering and Mines Promotion and Tenure Committee, 2010-2012.

University of North Dakota Services:

- Member of the UND Conflict of Interest (CoI) Committee, 2016-Present.
- Full Member of the UND Graduate Faculty, 2005-Present.
- Member of the UND Faculty Seed Money Grant Committee, 2014-2015.
- Member of the UND Graduate Faculty representing School of Engineering and Mines, 2010-2012.
- Member of the UND Faculty Seed Money Grant Committee, 2006-2008.
- Senator of the University of North Dakota Senate (representing College of Engineering and Mines), 2004-2007.
- Member of the UND Faculty Research Seed Money Council, Fall 2003-Spring 2005.
- Associate member of the UND Graduate Faculty, 2002-2004.

Personal Development Activities

Dr. Mamaghani, attended the following AISC and ASCE webinars so that he can teach his Structural Mechanics courses effectively.

- NS 24 8-Session Package-NS 24: Modern Methods for Learning Structural Stability (Fall 2020)
- Calculation and Applying Design Wind Loads on Buildings Using the Envelope Procedure of ASCE 7-16" (Fall 1019)
- NS 20 8-Session Package-Night School 20: Classical Methods of Structural Analysis (Summer 2019)
- NS 18 8-Session Package-Night School 18: Steel Construction: Mill to Topping Out (Fall 2018)
- NS 16 8-Session Package-Night School 16 - Seismic Design in Steel (Spring 2018)
- NS 14 8-Session Package-Night School 14 - Fundamentals of Stability (Summer 2017)

Paper Awards

After a multi-level review process, the following two papers of Dr. Mamaghani coauthored with his graduate students won the Best Graduate Paper Award and the Best Paper Award of the 6th IAJC International Conference that was hold on October 11 – 14, 2018, Orlando, Florida, that is one of the most selective and prestigious conferences.

- Roopkumdee, W., and Mamaghani, I.H.P., (2018) Seismic Design and Buckling Strength Evaluation of Liquid-Filled Steel Cylindrical Tanks, ". In 6th IAJC International Conference (Best Graduate Paper Award), Paper ID: 067, October 11-14, Orlando, Florida, ISBN 978-1-60643-379-9.
- Al-Kaseasbeh, Q., and Mamaghani, I. H. P. (2018). "Design and Cyclic Elastoplastic Analysis of Graded Thin-Walled Steel Tubular Columns with Enhanced Strength and Ductility". In 6th IAJC International Conference (Best Paper Award), Paper ID: 066, October 11-14, Orlando, Florida, ISBN 978-1-60643- 379-9.



Award Certificates: