

Xuan ‘Peter’ Zhu, Ph.D., Assistant Professor

Department of Civil and Environmental Engineering, University of Utah,
110 Central Campus Drive Room 2048, Salt Lake City, UT 84112
Tel: 801-585-7961; Fax: 801-585-5477; Email: xuan.peter.zhu@utah.edu

RESEARCH INTERESTS

Experimental Mechanics; Nonlinear ultrasound testing; Nondestructive Evaluation; Wearable Devices; Intelligent Infrastructure; Structural Health Monitoring

ACADEMIC APPOINTMENTS

- Assistant Professor, Civil & Environmental Engineering, University of Utah, 2018-present
- Visiting scholar, Earth & Environmental Sciences, Los Alamos National Laboratory, 07/2018
- Post-doctoral research associate, Civil & Environmental Engineering, University of Illinois at Urbana-Champaign, 2017-2018
- Post-doctoral Researcher, Structural Engineering, University of California, San Diego, 2016-2017

EDUCATION

- Ph.D., Structural Engineering, *University of California, San Diego*, U.S., 2016
- M.S., Civil Engineering, *University of Pittsburgh*, U.S., 2010
- B.S., Mechanical Engineering, *Beihang University*, China, 2008

TEACHING

Courses teaching & development

- CVEEN 6920 *Infrastructure sensing & health monitoring*, 2020 Fall, instructor
- CVEEN 5920 *Smart City & Infrastructure*, 2020 Spring, guest lecturer
- CVEEN 2010 *Statics*, 2020 Spring, instructor (Course 5.07/6.0, Instructor 5.19/6.0)
- CVEEN 7920 *Infrastructure sensing & health monitoring*, 2019 Fall, instructor (Course 5.64/6.0, Instructor 5.75/6.0)
- CVEEN 2010 *Statics*, 2019 Spring, instructor (Course 5.38/6.0, Instructor 5.23/6.0)
- CVEEN 7920 *Infrastructure sensing & health monitoring*, 2018 Fall, instructor (Course 5.32/6.0, Instructor 5.44/6.0)
- SE252 *Experimental Mechanics & NDE*, University of California, guest lecturer 2013-2015
- CEE137, *Nondestructive Testing*, University of Pittsburgh, teaching assistant 2008-2009

Innovations in Teaching

- Developed a new course module on ‘Machine learning for Nondestructive Evaluation’ for CVEEN7920 *Infrastructure sensing & health monitoring*, 2020-2021
- Obtained external grant to develop a new module on ‘Machine learning for Nondestructive Evaluation’ for CVEEN7920 *Infrastructure sensing & health monitoring*, 2020-2021
- Developed and co-taught a module on smart sensors for CVEEN5920 *Smart City & Infrastructure*, 2020 Spring
- Pioneered the use of online examination tools for CVEEN2010 *Statics*, 2020 Spring
- Established an online learning framework for CVEEN2010 *Statics*, 2019-2020 Spring
- Introduced six recitation sessions for CVEEN2010 *Statics* to improve problem-solving skills on math and engineering problems, 2019-2020 Spring
- Designed a series of in-class quizzes for CVEEN2010 *Statics* to improve class engagement and enable real-time feedback learning, 2019-2020 Spring

- Designed a new homework assignment on 'Beams' module for CVEEN2010 *Statics* to emphasis programming and optimization in structural analysis, 2019 Spring
- Developed a brand new graduate class CVEEN7920 *Infrastructure sensing & health monitoring* 2018 Fall

Students advising

Serve as Ph.D. committee chair

- Yuning Wu, Ph.D. student, Univ. Utah (est. 2023)
- Keping Zhang, Ph.D. student, Univ. Utah (est. 2024)
- Xiangdong He, Ph.D. student, Univ. Utah (est. 2024)

Serve as Ph.D. committee member

- Emily R. Diedrich, Ph.D. student, Univ. Utah
- Zhidi Wu, Ph.D. student, Univ. Utah
- Abu Sufian Mohammad Asib, Ph.D. student, Univ. Utah
- Ijan Dangol, Ph.D. student, Univ. Utah
- Reza Sheibani, Ph.D. student, Univ. Utah
- Jiayue Xue, Ph.D. student, Univ. Utah
- Zhongming Xiang, Ph.D. student, Univ. Utah
- Junwei Liu, Ph.D. student, Univ. Utah
- Avinash Rajesh Rishi, graduate student, Univ. Utah, 2018 (Master thesis: Development of In-situ water-cement ratio determination method)

Serve as mentor

- Adrian M. Porras, undergraduate researcher, Univ. Utah, 2019-2020 (Honor thesis: Acoustic emission monitoring on reinforced concrete frames with improved seismic resilience)
- Ranting Cui, Ph.D. student, UCSD, 2017 (Semi-Analytical Finite Element method for wave propagation in rails and composites)
- Yichao Yang, graduate researcher, UCSD, 2016 (Bayesian experimental design framework for Structural health monitoring system)
- Liam Brown, undergraduate researcher, UCSD, 2016 (Nondestructive evaluation method for detecting major damage in internal composite structural components)
- Yichao Yang, undergraduate researcher, UCSD, 2015 (The hole-drilling method for residual stress determination)
- Victoria Kennedy, undergraduate researcher, University of Pittsburgh, 2009 (Soil moisture characterization by stress wave)

SERVICES

Internal

- URS Poster evaluator, Undergraduate Research Symposium, University of Utah, 2020
- Event host, Engineering Day Research Symposium, COE, 2020
- Committee member, UAC instructor search committee, CVEEN department, 2020
- Committee member, Technology coordinator search committee, CVEEN department, 2020
- Committee member, Graduate student recruitment committee, CVEEN department, 2019-present
- Committee member, ABET & Undergraduate committee, CVEEN department, 2018-present
- Committee member, Cyber technology integration committee, CVEEN department, 2018-present
- Committee member, Strategic hiring & planning committee, CVEEN department, 2018-present

External

- National Science Foundation Reviewer, 2021
- Review editor on the Editorial Board of *Frontiers in Built Environment*, 2020-present
- Committee member, Joint committee of Structural Health Monitoring, AHD30(3), Transportation Research Board, 2019-present
- Grant reviewer, DOE-NE Consolidated Innovative Nuclear Research, 2020-present
- Grant reviewer, DOE Small Business Innovation Research, 2020
- Organizing member, 7th International Conference on Experimental Vibration Analysis for Civil Engineering Structures, University of California San Diego, La Jolla, CA, July 12-14, 2017

- Chairing Sessions, session on “Smart Sensing and Signal Processing for Diagnostics”, SPIE Smart Structures/NDE, Portland, OR, March 2017
- Chairing Sessions, session on “Guided Waves I: Civil Infrastructures Monitoring”, SPIE Smart Structures/NDE, Portland, OR, March 2017
- Chairing Sessions, session on “Guided Waves for SHM in Aerospace Applications II”, SPIE Smart Structures/NDE, San Diego, CA, March 2014
- Reviewer for Journal of Performance of Constructed Facilities, Applied Sciences, Sensors, Functional composites and structures, Experimental Mechanics, Ultrasonics, Journal of Intelligent Material Systems and Structure, Smart Materials and Structures, International Journal of Structural Health Monitoring, NDT&E International, Journal of Nondestructive Evaluation, ASME Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems, ASME Vibration & Acoustics, Composites Part B: Engineering, Functional composites and structures, Journal of Mechanical Engineering Science, Sensors, Journal of Distributed Sensor Networks, Applied Science, Material Research Express, Journal of Modern Transportation, IEEE Transportation, International Journal for Numerical Methods in Biomedical Engineering.

GRANTS

Summary – Total funds: \$1.04M. Zhu’s share: \$577k.

- “Polarized infrared and optical imaging system for transit infrastructure condition assessment” (**Lead PI**, USDOT Federal Transit Administration, 2021/01-2022/06, \$338,115)
- “BRB braced frames for seismically resilient mass timber buildings” (**Co PI**, USDA US forest service, 2020/09-2022/08, \$249,940)
- “Development of a course module in machine learning for nondestructive testing at the University of Utah” (**Lead PI**, ASNT Faculty Grant, 2020/05-2021/04, \$9,916)
- “High-speed rail inspection exploiting and anomaly detection data processing approach” (**Lead PI**, USDOT Federal Railroad Administration, 2020/07-2021/12, \$179,948)
- “Roadway ice/snow detection using novel infrared thermography technology” (**Lead PI**, USDOT Federal Highway Administration, 2020/04-2022/03, \$137,359)
- “Polarized infrared thermography for rail defect detection” (**Lead PI**, Association of American Railroads, 2019/10-2019/12, \$19,841)
- “Vibration-based longitudinal rail stress estimation exploiting contactless measurement and machine learning” (**Co PI**, USDOT Federal Railroad Administration, 2019/04-2020/07, \$100,000)

PUBLICATIONS

As of Feb. 2021 – Journal articles: 16; Conference proceedings: 20; Citations: 368; h-index: 11; i10-index: 12. Underline indicate student(s) I mentored at Utah. And * indicates the paper I served as corresponding author.

- **Journal articles**
- 1. Zhou, Z., Li, J., Xia, W., **Zhu, X.**, Sun, T., Cao, C., & Zhang, L. (2020). “Enhanced piezoelectric and acoustic performances of poly (vinylidene fluoride-trifluoroethylene) films for hydroacoustic applications,” *Physical Chemistry Chemical Physics*, 22(10).
- 2. Tarokh, A., Makhnenko, R.Y., Kim, K., **Zhu, X.**, Popovics, J. S., Segvic, B., Sweet, D. E.. “Influence of CO2 injection on the poromechanical response of Berea sandstone,” *International Journal of Greenhouse Gas Control*, 95
- 3. Hu, H., **Zhu, X.**, Zhang, L., Li, X., Sternini, S., Lanza di Scalea, F., Xu, S. “Stretchable ultrasonic transducers for three-dimensional imaging on complex surfaces,” *Science Advances*, 4 (3), aar3979.
- 4. Lanza di Scalea, F., **Zhu, X.**, Sternini, S., Capriotti, M., Liang, A., Mariani, S. (2018) “Passive extraction of dynamics transfer function from ambient excitations: applications to high-speed rail inspection,” *Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems, ASME*, 1(1), 011005.
- 5. Mariani, S., Nguyen, T. V., **Zhu, X.**, Lanza di Scalea, F. (2017) “Field test performance of non-contact ultrasonic rail inspection system,” *J. Transp. Eng. ASCE, Part A: Systems*, Vol.143, 5. DOI: <http://dx.doi.org/10.1061/JTEPBS.0000026>.
- 6. **Zhu, X.**, Lanza di Scalea, F. (2017) “Thermal stress measurement in continuous welded rails using the hole-drilling method,” *Experimental Mechanics*, Vol. 57, 1, pp 165-178. DOI: 10.1007/s11340-016-0204-8.
- 7. **Zhu, X.**, Lanza di Scalea, F. (2016) “Sensitivity to axial stress of electro-mechanical impedance measurements,” *Experimental Mechanics*, Vol. 56, 9, pp 1599–1610. DOI:10.1007/s11340-016-0198-2.
- 8. Kijanka, P., Packo, P., **Zhu, X.**, Staszewski, W., Lanza di Scalea, F. (2015) “Three-dimensional temperature

effect modelling of piezoceramic transducers used for Lamb wave based damage detection," *Smart Materials and Structures*, Vol. 24, 6, 0605005. DOI: 10.1088/0964-1726/24/6/065005.

9. Tippmann, J. D., **Zhu, X.**, Lanza di Scalea, F. (2015) "Application of damage detection methods using passive reconstruction of impulse response functions," *Philos Trans A Math Phys Eng Sci.*, 373, 2035. DOI: 10.1098/rsta.2014.0070.
10. **Zhu, X.**, Rizzo, P. (2014) "Sensors array for the health monitoring of truss structures by means of guided ultrasonic waves," *Journal of Civil Structural Health Monitoring*, Vol. 4, 3, pp 221-234. DOI: 10.1007/s13349-014-0078-3.
11. **Zhu, X.**, Rizzo, P. (2013) "Guided ultrasonic waves for the health monitoring of sign support structures under varying environmental conditions," *Structural Control and Health Monitoring*, Vol. 20, 2, pp 156–172. DOI: 10.1002/stc.481.
12. Phillips, R., **Zhu, X.**, Lanza di Scalea, F. (2012) "The influence of stress on electro-mechanical impedance measurements in rail steel," *Material Evaluation*, Oct. Vol. 70, 10, pp 1213-1218.
13. **Zhu, X.**, Rizzo, P. (2012) "A unified approach for the structural health monitoring of waveguides," *Structural Health Monitoring*, Vol. 11, 6, pp 629-642. DOI:10.1177/1475921712438569.
14. **Zhu, X.**, Rizzo, P., Marzani, A., and Bruck, J. (2010) "Ultrasonic guided waves for NDE/SHM of trusses," *Measurement Science and Technology*, Vol. 20, 2, pp 156-172. DOI: 10.1088/0957-0233/21/4/045701.
15. Zhou, Z., Feng, Z., Gao, Y. and **Zhu, X.** (2008). "Application of time -frequency analysis to ultrasonic guided wave signal interpretation," *Journal of Beijing University of aeronautics and astronautics*, Vol.7, 833-837.
16. Zhou, Z., Feng, Z., Gao, Y. and **Zhu, X.** (2008). "Application of guided waves to the defects inspection of large thin aluminum plate," *Acta Aeronautica et Astronautica Sinica*, Vol. 29 , 4: 1044-1048.

• Conference proceedings

1. Wu, Y., **Zhu, X.***, Huang, C., Lee, S., Dersch, M., Popovics, J. S. (2021). Rail neutral temperature estimation using field data, numerical models, and machine learning. AMSE Joint Rail Conference, April 20-21, 2021.
2. Wu, Y., **Zhu, X.***, Huang, C., Lee, S., Dersch, M., Popovics, J. S. (2021). Rail neutral temperature estimation using impulse vibration and machine learning. SPIE Smart Structures + Nondestructive evaluation, Long Beach, California, March 7-10th, 2021.
3. Lanza di Scalea, F., Liang, A., Sternini, S., Capriotti, M., Datta, D., **Zhu, X.**, Wilson, R. (2019). Ultrasonic Identification of Rail Tracks from Natural Wheel Excitations: Potential for High-Speed and High-Redundancy Rail Inspection. International Workshop of Structural Health Monitoring 2019. Article, Refereed Conference Proceedings, Published, 10/01/2019.
4. Zhu, X., Hu, H., Sternini, S., Xu, S. & Lanza di Scalea, F. (2019). Stretchable ultrasonic transducer arrays for three-dimensional imaging on complex surfaces. International Workshop of Structural Health Monitoring. Article, Refereed Conference Proceedings, Published, 10/01/2019.
5. Liang, A., Sternini, S., Capriotti, M., **Zhu, X.**, Lanza di Scalea, F. & Wilson, R. (2019). Passive extraction of Green's function of solids and application to high-speed rail inspection. Vol. 10970. SPIE Smart Structures & Nondestructive Evaluation. Other, Published, 03/23/2019.
6. **Zhu, X.**, Sternini, S., Capriotti, M., Liang, A., Mariani, S., Lanza di Scalea, F. (2017) "High-speed non-contact passive-only ultrasonic inspection of rails from deconvolution of wheel-generated noise," *Intl. Workshop on Structural Health Monitoring*, Stanford, CA, September 12-14, 2017.
7. **Zhu, X.**, Lanza di Scalea, Fateh, M. (2017). "Thermal stress characterization using the electro-mechanical impedance method," *Proc. SPIE 10164, Active and Passive Smart Structures and Integrated Systems 2017*, 1016407.
8. **Zhu, X.**, Lanza di Scalea, Fateh, M. (2016). "Thermal stress measurement in continuous welded rails using the hole-drilling method," *Proc. Joint Rail Conference*, Paper No. JRC2016-5719, pp. V001T06A002, 10 pages.
9. Mariani, S., Nguyen, T. V., **Zhu, X.**, Sternini, S., Lanza di Scalea, F., Fateh, M., Wilson, R. (2016). 'Non-contact ultrasonic guided wave inspection of rails: next generation approach,' *Proc. 2016 Joint Rail Conference*, Paper No. JRC2016-5776, pp. V013T06B024, 8 pages.
10. Mariani, S., Nguyen, T., **Zhu, X.**, Lanza di Scalea, F. and Fateh, M. (2015). "Non-contact ultrasonic guided wave inspection of rails: field test results and update," *Sensors and Smart Structures Technologies for Civil, Mechanical and Aerospace Systems (SPIE Vol 9435)*, J.P. Lynch, C-B. Yun, K-W. Wang, eds., part of SPIE Smart Structures/NDE Symposium, San Diego, CA, pp. 86921L1-86921L12, March 8-12.
11. Kijanka, P., Packo, P., **Zhu, X.**, Staszewski, W. and Lanza di Scalea, F (2014). "Three-dimensional temperature effect modelling of piezoceramic transducers used for structural health monitoring," *Proceedings of 5th Asia-Pacific Workshop on Structural Health Monitoring (AWPSHM 2014)*, Shenzhen, China, December 4-5, 2014.

12. **Zhu, X.**, Lanza di Scalea, F. and Fateh, M., (2014). "Temperature and axial stress effects in electro-mechanical impedance method-based structural health monitoring," *Proceedings of SPIE Smart Structures/NDE Annual International Symposium - Health Monitoring of Structural and Biological Systems*, T. Kundu, ed., San Diego, CA, March 9-13, Vol. 9064, pp 90641O1-90641O12.
13. Tippmann, J., **Zhu, X.** and Lanza di Scalea, F. (2014). "Probabilistic structural health monitoring using passive-only damage detection by reciprocity of Green's functions reconstructed from diffuse acoustic fields," *Proc. 7th European Workshop on Structural Health Monitoring*, (EWSHM 2014), Nantes, France, July 8-11, pp. 1-8.
14. Nucera, C., Phillips, R., **Zhu, X.**, Mariani, S., Lanza di Scalea, F., Fateh, M. and Carr, G. (2013) "Nonlinear guided waves for neutral temperature measurement in continuous welded rails: results from laboratory and field tests," *Proceedings of SPIE Smart Structures/NDE Annual International Symposium - Health Monitoring of Structural and Biological Systems VII*, T. Kundu, ed., San Diego, CA, Vol. 8695, pp. 8695281-86952812.
15. **Zhu, X.**, and Rizzo, P. (2011). "Combining guided waves and electromechanical impedance method for SHM applications," *Proc. 8th Intl. Workshop on Structural Health Monitoring*, Ed. F.-K. Chang, Stanford, CA, September 13-15, 2584-2591.
16. **Zhu, X.**, Rizzo, P., and Bruck, J. (2011). "Sign support structures tested by means of guided waves," *SEM Annual Conference & Exposition on Experimental and Applied Mechanics*, Mohegan Sun, Uncasville, Connecticut USA June 13 - 16.
17. **Zhu, X.**, and Rizzo, P., (2011). "Guided ultrasonic waves for the health monitoring of existing sign support structures," *Proc. of SPIE's 18th Annual International Symposium on Smart Structures and Materials – Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2011*, Proc. SPIE 7984, 79840E (2011); doi:10.1117/12.879268
18. **Zhu, X.**, and Rizzo, P., (2011). "Guided ultrasonic waves under varying environmental conditions for sign support structures," *Proc. ASNT 20th Annual Research Symposium & Spring Conference*, San Francisco, CA, Mar. 21-25.
19. "Pushing the Limits of Sensing Technology for Intelligent Infrastructure and Health Monitoring," *Dept. Civil and Environmental Engineering, University of Utah*, Salt Lake City, February 2018.
20. **Zhu, X.** and Rizzo, P., Bruck, J. (2010). "Guided waves for SHM of a large truss structure," *Proceedings of SPIE's 17th Annual International Symposium on Smart Structures and Materials – Sensors and Smart Structures Technologies for Civil, Mechanical and Aerospace System, Health Monitoring of Structural and Biological Systems 2010*, Proc. of SPIE Vol. 7650, 76500O.

• **Technical reports**

1. Popovics, J. S., Dersch, M. S., **Zhu, X.** (2020). Vibration-based longitudinal rail stress estimation exploiting acoustic measurement and machine learning. Transportation Research Board Rail Safety IDEA project 41.
2. Rizzo, P. & **Zhu, X.** (2010). Sensing technology for damage assessment of sign supports and cantilever poles-final report, Penn Department of Transportation, Contract No. 519691-PIT 008
3. **Zhu, X.**, Rizzo, P., & Tajari, M. (2010). Sensing technology for damage assessment of sign supports and cantilever poles, Year 2, Penn Department of Transportation, Contract No. 519691-PIT 008

HONORS & AWARDS

- ASNT Faculty Grant, the American Society for Nondestructive Testing, 2020
- Dissertation Fellowship, University of California, San Diego, 2016
- NSF Scholarship, University of Illinois at Urbana-Champaign, Asia-Pacific Summer School in Smart Structures Technology, 2015
- Charles Lee Powell Fellowship Jacobs School of Engineering, UCSD, 2011-2012
- Pre-Doctoral Fellowship, University of Pittsburgh, 2010
- Second Prize in FengRu Cup, Tech invention competition top 5%, 2007
- Excellent Volunteer, Beihang University, 2007

INVITED SEMINARS & PRESENTATIONS

Invited Talks

1. "Roadway ice/snow detection using a novel infrared thermography technology," *FHWA Aurora board meeting*, Oct. 9, 2019.
2. "Nondestructive evaluation and structural health monitoring of rail tracks," *Utah Transit Authority*, Sept. 26, 2019.
3. "Ice/snow detection with infrared thermography at high-speed intersections," *Utah DOT*, August 15, 2019.

4. "Nonlinear vibrational/ultrasonic evaluation of Carbon-treated Berea sandstone," *DOE Energy Frontier Research Center - GSCO2 final meeting*, May 21, 2019.
5. "NDE for railroad and beyond," 2019 TRB NDT committee meeting presentation, Jan. 14, 2019.
6. *School of Engineering, University of Glasgow*, Glasgow, U.K., May 2018 (declined).
7. "Pushing the limits of sensing technology for intelligent infrastructure and health monitoring," *Dept. Civil & Environmental Engineering, Clarkson University*, Potsdam, New York, April 2018.
8. "Pushing the limits of sensing technology for intelligent infrastructure and health monitoring," *Dept. Civil & Environmental Engineering, Virginia Tech*, Blacksburg, Virginia, March 2018.
9. "Pushing the limits of sensing technology for intelligent infrastructure and health monitoring," *Dept. Civil & Environmental Engineering, University of Utah*, Salt Lake City, Utah, Feb. 2018.
10. "Linear and nonlinear vibrational/ultrasonic evaluation of Berea sandstone," *ASA Fall Conference 2017*, New Orleans, LA, United States, Dec. 08, 2017.
11. "Passive reconstruction of impulse response functions and its applications in SHM," *Dept. Civil and Environmental Engineering, University of Strathclyde*, U.K, April 2017.
12. "Electro-mechanical impedance-based SHM and its applications on high-speed railway system," *NDT laboratory, Beihang University*, Beijing, China, Jan. 2015.
13. "The Applications of ultrasonic guided waves on the highway infrastructure maintenance," *Dept. Mechanical Engineering, Beijing University of Technology*, Beijing, China, July, 2011.

Conference & poster presentations

1. "Vibration-Based Longitudinal Rail Stress Estimation Exploiting Contactless Measurement and Machine Learning (Rail Safety IDEA 41)," TRB poster session, Jan. 14, 2020.
2. "Thermal stress characterization using the electro-mechanical impedance method," *SPIE Smart Structures/NDE Conference*, Active and Passive Smart Structures and Integrated Systems, Portland, Oregon, United States, March 25, 2017.
3. "In-situ thermal stress estimation in structures using the Electro-Mechanical Impedance method", *IMAC-XXXV Conference and Exposition on Structural Dynamics*, Garden Grove, CA, Feb.2, 2017.
4. "Thermal stress characterization using the impedance-based structural health monitoring system," *SPIE Smart Structures/NDE Conference*, Active and Passive Smart Structures and Integrated Systems, Las Vegas, Nevada, United States, March 20, 2016.
5. "Thermal stress measurement in continuous welded rails using the hole-drilling method," *SPIE Smart Structures/NDE Conference*, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems, Las Vegas, Nevada, United States, March 20, 2016.
6. "Thermal stress measurement in continuous welded rails using the hole-drilling method," *ASME-Joint Rail Conference*, Columbia, SC, United States, April 15, 2016.
7. "On the study of the influences of temperature and axial load to the impedance-based structural health monitoring system," *11th International Workshop on Advanced Materials and Smart Structures Technology*, University of Illinois Urbana-Champaign, August 2, 2015.
8. "On the study of the in-situ thermal stress measurement using a hole-drilling method," *11th International Workshop on Advanced Materials and Smart Structures Technology*, University of Illinois Urbana-Champaign, August 2, 2015.
9. "Temperature And Axial Stress Effects In Electro-Mechanical Impedance Method-Based Structural Health Monitoring," *SPIE Smart Structures/NDE Conference*, Health Monitoring of Structural and Biological Systems, San Diego, CA, United States, March 9-13, 2014.
10. "Axial Stress Determination Using Impedance Based Method And Its Application On The Thermal Stresses Measurement In Continuous Welded Rail," *SPIE Smart Structures/NDE Conference*, Health Monitoring of Structural and Biological Systems, San Diego, CA, March 10-14, 2013.
11. "Guided waves for SHM of a large truss structure," *SPIE Smart Structures/NDE Conference*, Sensors and Smart Structures Technologies for Civil, Mechanical and Aerospace System, Health Monitoring of Structural and Biological Systems, San Diego, CA, March 10-14, 2010.