

TENG WU

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Dr. Teng Wu received his Ph.D. degree from University of Notre Dame in 2013. He is currently an Assistant Professor in the Department of Civil, Structural and Environmental Engineering at the University at Buffalo (UB). Wu has made significant contributions to development of analytical and computational methods focusing on nonlinear and transient structural aerodynamics, nonstationary extreme winds, and hurricane wind and rain hazards. His contributions have been recognized through the 2013 American Society of Civil Engineers (ASCE) O.H. Ammann Research Fellowship, 2014 American Association for Wind Engineering (AAWE) Best Paper Award, 2016 ASCE Alfred Noble Prize, 2017 AAWE Robert Scanlan Award, 2017 International Association for Wind Engineering (IAWE) Junior Award and 2018 International Association for Bridge and Structural Engineering (IABSE) Prize.

Wu currently serves as the Associate Editor of ASCE Journal of Bridge Engineering, Frontiers in Built Environment-Wind Engineering and Science, and International Journal of Aerospace Engineering. He is a member of Super-Long-Span Bridge Aerodynamics Working Group of IABSE and a member of Academic Committee of International Joint Research Laboratory of Rail Transportation Safety. He also serves on a number of ASCE committees including Structural Wind Engineering Committee, Performance Based Wind Engineering Committee, Standards Committee ASCE 49-Wind Tunnel Testing for Buildings and Other Structures, EMI Dynamics Committee, Computational Mechanics Committee, Fluid Dynamics Committee, Probabilistic Methods Committee, and Structural Health Monitoring and Control Committee. Since joining UB, Wu has obtained support for his research from federal and state agencies in the United States and through industrial and international collaborations. He currently collaborates with more than 15 national and international institutions. Wu has authored more than 40 articles published in highly respected journals of structural/wind engineering, and presented over 60 conference papers.

Education Background

University of Notre Dame	Civil Engineering	Ph.D. (Advisor: Ahsan Kareem)	08/2011-12/2013
University of Notre Dame	Civil Engineering	M.S. (Advisor: Ahsan Kareem)	08/2008-04/2012
Tongji University	Bridge Engineering	M.S. (Advisor: Yaojun Ge)	09/2007-09/2010
Tongji University	Civil Engineering	B.E. (Advisor: Yaojun Ge)	09/2003-06/2007
Fudan University	Financial Engineering	Minor	09/2004-09/2006

Appointments

Assistant Professor, <i>Department of Civil, Structural and Environmental Engineering, University at Buffalo</i>	08/2014-Present
Research Assistant Professor, <i>Department of Civil & Environmental Engineering & Earth Sciences (CEEES), University of Notre Dame</i>	01/2014-08/2014
Research Assistant, <i>CEEES, University of Notre Dame</i>	05/2010-12/2013
Teaching Assistant, <i>CEEES, University of Notre Dame</i>	08/2008-05/2010

Research Interests

Structural Engineering; Wind Engineering; Bridge Engineering; Wind-Train-Bridge System; Nonlinear and Transient Aerodynamics; Hurricane Hazard Modeling; Non-Synoptic Winds; Fluid-Structure Interaction; Reduced-Order Modeling; Computational Fluid Dynamics; Turbulence Modeling; Climate Change.

Selected Honors & Awards

IABSE Prize, IABSE (International Association for Bridge and Structural Engineering)	2018
<i>"In recognition of his significant contribution in strengthening the role of structural engineers in complex international and multidisciplinary projects and his involvement in many innovative structural design achievements in the field of architecture and building structures"</i>	

Junior Award, IAWE (International Association for Wind Engineering)	2017
<i>“In recognition of many contributions to development of analytical methods focusing on nonlinear and unsteady features of structural aerodynamics”</i>	
Robert Scanlan Award, AAWE (American Association for Wind Engineering)	2017
<i>“In recognition of the contributions to wind engineering for best doctoral thesis related to theoretical advances in the mechanics of wind-structure interaction titled ‘Nonlinear Bluff-Body Aerodynamics’”</i>	
Alfred Noble Prize, ASCE/ASME/IEEE (American Society of Civil Engineers/American Society of Mechanical Engineers/Institute of Electrical and Electronics Engineers)	2016
<i>“In recognition of the mathematical elegance and its critical contribution to the issue of the aerodynamics of bridges for the paper titled ‘Revisiting Convolution Scheme in Bridge Aerodynamics: Comparison of Step and Impulse Response Functions’ published in the ASCE Journal of Engineering Mechanics”</i>	
ASCE ExCEED Fellow, ASCE	2015
Best Paper Award, AAWE	2014
<i>“In recognition of the contributions to wind engineering for the paper titled ‘Bridge Aerodynamics and Aeroelasticity: A Comparison of Modeling Schemes’ published in the Journal of Fluids and Structures”</i>	
O.H. Ammann Research Fellowship Award, ASCE	2013
First-Class Dissertation of Tongji University	2007
First-Class Graduate in Shanghai Area	2007
Mao Yi-sheng Engineering Education Medal for Students, Education Fund Committee of Science and Technology in China	2006
First Place in the 3rd Structural Design Contest in East China	2005

Journal Papers Published (Underline: graduate student advised; *Italics*: visiting students and scholars & postdoctoral fellows; *: corresponding author)

Affiliated with University at Buffalo:

- J1. **Wu, T.***, 2018. Changing Bridge Aerodynamics under Nonstationary Winds. *IABSE Structural Engineering International*, 10.1080/10168664.2018.1511770.
- J2. **Snaiki, R.** and **Wu, T.***, 2018. A Semi-Empirical Model for Mean Wind Velocity Profile of Landfalling Hurricane Boundary Layers. *Journal of Wind Engineering and Industrial Aerodynamics*, 180, 249-261.
- J3. **Hao, J.** and **Wu, T.***, 2018. Downburst-Induced Transient Response of a Long-Span Bridge: A CFD-CSD-based Hybrid Approach. *Journal of Wind Engineering and Industrial Aerodynamics*, 179, 273-286.
- J4. **Wang, H.** and **Wu, T.***, 2018. Hilbert-Wavelet-Based Nonstationary Wind Field Simulation: A Multi-Scale Spatial Correlated Scheme. *ASCE Journal of Engineering Mechanics*, 144(8), 04018063.
- J5. **Snaiki, R.** and **Wu, T.***, 2018. An Analytical Framework for Rapid Estimate of Rain Rate during Tropical Cyclones. *Journal of Wind Engineering and Industrial Aerodynamics*, 174, 50-60.
- J6. Li, L., **Wu, T.**, He, X.*, **Hao, J.**, Wang, H., Xu, H., 2018. Reliability Evaluation of Vortex-Induced Vibration for a Long-Span Arch Bridge. *ASCE Journal of Bridge Engineering*, 23(5), 05018002.
- J7. Song, J.*, Lee, D., Erikson, J., **Hao, J.**, **Wu, T.** and Kim, B., 2018. Embossed Structural Skin for Tall Buildings. *International Journal of High-Rise Buildings*, 7(1), 17-32.
- J8. Wang, H.*, Xu, Z., **Wu, T.**, Mao, J., 2018. Evolutionary Power Spectral Density of Recorded Typhoon at Sutong Bridge Using Harmonic Wavelet. *Journal of Wind Engineering and Industrial Aerodynamics*, 177, 197-212.
- J9. He, X., Zhou, L., Chen, Z., Jing, H.*, Zou, Y. and **Wu, T.**, 2018. Effect of Wind Barriers on the Flow Field and Aerodynamic Forces of a Train-Bridge System. *Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit*, 0954409718793220.
- J10. **Snaiki, R.** and **Wu, T.***, 2017. A Linear Height-Resolving Wind Field Model for Tropical Cyclone Boundary Layer. *Journal of Wind Engineering and Industrial Aerodynamics*, 171, 248-260.

- J11. **Snaiki, R.** and **Wu, T.***, 2017. Modeling Tropical Cyclone Boundary Layer: Height-Resolving Pressure and Wind Fields. *Journal of Wind Engineering and Industrial Aerodynamics*, 170, 18-27.
- J12. **Hao, J.** and **Wu, T.***, 2017. Non-synoptic Wind-Induced Transient Effects on Linear Bridge Aerodynamics. *ASCE Journal of Engineering Mechanics*, 143(9), 04017092.
- J13. He, X., **Shi, K.** and **Wu, T.***, 2017. An Integrated Structural Health Monitoring System for the Xijiang High-Speed Railway Arch Bridge. *Smart Structure and System*, 21(5), 611-621.
- J14. Tao, T., Wang, H.* and **Wu, T.**, 2017. Parametric Study on Buffeting Performance of a Long-span Triple-tower Suspension Bridge. *Structure and Infrastructure Engineering*, 1-19.
- J15. He, X., Gai, Y. and **Wu, T.***, 2017. Simulation of Train-Bridge Interaction under Wind Loads: A Rigid-Flexible Coupling Approach. *International Journal of Rail Transportation*, 5(4), 1-20.
- J16. Xu, Z., Wang, H.*, **Wu, T.**, Tao, T. and Mao, J., 2017. Wind Characteristics at Sutong Bridge Site using 8-Year Field Measurement Data. *Wind and Structures*, 25(2), 195-214.
- J17. He, X.*, **Wu, T.**, Zou, Y., Chen, Y., Guo, H. and Yu, Z., 2017. Recent Development of High-speed Railway Bridges in China. *Structure and Infrastructure Engineering*, 13(12), 1-12.
- J18. Chen, L.*, Li, S., Wang, Y., Zhao, Y., Zhang, M, Li, X., **Wu, T.** and Jiang, L., 2017. Experimental Study on the Seismic Behaviour of Mortise-Tenon Joints of the Ancient Timbers. *IABSE Structural Engineering International*, 27(4), 512-519.
- J19. Tao, T., Wang, H.* and **Wu, T.**, 2016. Comparative Study of the Wind Characteristics of a Strong Wind Event Based on Stationary and Nonstationary Models. *ASCE Journal of Structural Engineering*, 04016230.
- J20. Li, S.*, **Wu, T.**, Li, S. and Gu, M., 2016. Numerical Study on the Mitigation of Rain-wind Induced Vibrations of Stay Cables with Dampers. *Wind and Structures*, 23(6), 615-639.
- J21. Li, S.*, **Wu, T.**, Huang, T. and Chen, Z., 2016. Aerodynamic Stability of Iced Stay Cables on Cable-Stay Bridge. *Wind and Structures*, 23(3), 253-273.
- J22. He, X., Shi, K., **Wu, T.***, Zou, Y., Wang, H. and Qin, H., 2016. Aerodynamic Performance of a Novel Wind Barrier for Train-Bridge System. *Wind and Structures*, 23(3), 171-189.
- J23. Wang, H.*, Tao, T., **Wu, T.**, 2016. Wind Power Spectra for Coastal Area of East Jiangsu Province Based on SHMS. *Wind and Structures*, 22(2), 235-252.
- J24. Wang, H.*, Tao, T., **Wu, T.**, Mao, J. and Li, A., 2016. Joint Distribution of Wind Speed and Direction in the Context of Field Measurement. *Wind and Structures*, 20(5), 701-718.
- J25. Chen, B.*, **Wu, T.**, Yang, Y., Yang, Q., Li, Q. and Kareem, A., 2016. Wind Effects on A Cable-Suspended Roof: Full-Scale Measurements and Wind Tunnel Based Predictions. *Journal of Wind Engineering and Industrial Aerodynamics*, 155, 159-173.
- J26. Yin, C., **Wu, T.*** and Kareem, A., 2016. Synthetic Turbulence: A Wavelet-Based Simulation. *Probabilistic Engineering Mechanics*, 45, 177-187.
- J27. Wang, H., **Wu, T.***, Tao, T., Li, A. and Kareem, A., 2016. Measurements and Analysis of Non-Stationary Wind Characteristics at Sutong Bridge in Typhoon Damrey. *Journal of Wind Engineering and Industrial Aerodynamics*, 151, 100-106.
- J28. Haan, F.L., **Wu, T.*** and Kareem, A., 2016. Correlation Structures of Pressure Fields and Integrated Forces on An Oscillating Prism in Turbulent Flows. *ASCE Journal of Engineering Mechanics*, 142(5), 04016017.
- J29. Xu, F.*, **Wu, T.**, Ying, X. and Kareem, A., 2015. Higher-Order Self-Excited Drag Forces on Bridge Decks. *ASCE Journal of Engineering Mechanics*, 142(3), 06015007.
- J30. **Wu, T.*** and Kareem, A., 2015. A Low-Dimensional Model for Nonlinear Bluff-Body Aerodynamics: A Peeling-An-Onion Analogy. *Journal of Wind Engineering and Industrial Aerodynamics*, 146, 128-138.

- J31. **Wu, T.*** and Kareem, A., 2015. A Nonlinear Analysis Framework for Bluff-Body Aerodynamics: A Volterra Representation of the Solution of Navier-Stokes Equations. *Journal of Fluids and Structures*, 54, 479-502.
- J32. Kareem, A. and **Wu, T.***, 2015. Changing Dynamic of Bridge Aerodynamics. *Proceedings of the Institution of Civil Engineers, Structures and Buildings*, 168(2), 94-106.
- J33. Yang, Y., **Wu, T.***, Ge, Y. and Kareem, A., 2014. Aerodynamic Stabilization Mechanism of a Twin Box Girder with Various Slot Widths. *ASCE Journal of Bridge Engineering*, 20(3), 04014067. **(Research Highlights)**

Affiliated with University of Notre Dame:

- J34. Carassale, L., **Wu, T.*** and Kareem, A., 2014. Nonlinear Aerodynamic and Aeroelastic Analysis of Bridges: Frequency Domain Approach. *ASCE Journal of Engineering Mechanics*, 140(8), 04014051.
- J35. **Wu, T.*** and Kareem, A., 2014. Revisiting Convolution Scheme in Bridge Aerodynamics: Comparison of Step and Impulse Response Functions. *ASCE Journal of Engineering Mechanics*, 140(5), 04014008. **(Alfred Noble Prize)**
- J36. **Wu, T.*** and Kareem, A., 2014. Simulation of Nonlinear Bridge Aerodynamics: A Sparse Third-Order Volterra Model. *Journal of Sound and Vibration*, 333(1), 178-188.
- J37. **Wu, T.*** and Kareem, A., 2013. Bridge Aerodynamics and Aeroelasticity: A Comparison of Modeling Schemes. *Journal of Fluids and Structures*, 43, 347-370. **(Best Paper Award)**
- J38. **Wu, T.***, Kareem, A. and Ge, Y., 2013. Linear and Nonlinear Aeroelastic Analysis Frameworks for Cable-Supported Bridges. *Nonlinear Dynamics*, 74(3), 487-516.
- J39. **Wu, T.*** and Kareem, A., 2013. A Nonlinear Convolution Scheme to Simulate Bridge Aerodynamics. *Computers & Structures*, 128, 259-271.
- J40. **Wu, T.***, Kareem, A. and Li, S., 2013. On the Excitation Mechanisms of Rain-Wind Induced Vibration of Cables: Unsteady and Hysteretic Nonlinear Features. *Journal of Wind Engineering and Industrial Aerodynamics*, 122, 83-95.
- J41. Kareem, A. and **Wu, T.***, 2013. Wind-Induced Effects on Bluff Bodies in Turbulent Flows: Nonstationary, Non-Gaussian and Nonlinear Features. *Journal of Wind Engineering and Industrial Aerodynamics*, 122, 21-37.
- J42. **Wu, T.*** and Kareem, A., 2013. Vortex-Induced Vibration of Bridge Decks: Volterra Series-Based Model. *ASCE Journal of Engineering Mechanics*, 139(12), 1831-1843.
- J43. **Wu, T.*** and Kareem, A., 2013. Aerodynamics and Aeroelasticity of Cable-Supported Bridges: Identification of Nonlinear Features. *ASCE Journal of Engineering Mechanics*, 139(12), 1886-1893.
- J44. Li, S.*, Chen, Z., **Wu, T.** and Kareem, A., 2013. Rain-Wind-Induced In-Plane and Out-of-Plane Vibrations of Stay Cables. *ASCE Journal of Engineering Mechanics*, 139(12), 1688-1698.
- J45. **Wu, T.*** and Kareem, A., 2012. An Overview of Vortex-Induced Vibration (VIV) of Bridge Decks. *Frontiers of Structural and Civil Engineering*, 6(4), 335-347.
- J46. **Wu, T.*** and Kareem, A., 2011. Modeling Hysteretic Nonlinear Behavior of Bridge Aerodynamics via Cellular Automata Nested Neural Network. *Journal of Wind Engineering and Industrial Aerodynamics*, 99(4), 378-388.
- J47. **Wu, T.***, Ge, Y. and Xiong, J., 2008. Live Load and Its Response of Highway Bridges Based on International and Domestic Design Codes. *Structural Engineers*, 24(5), 130-136.
- J48. **Wu, T.***, Ge, Y., Xiong, J. and Ye, X., 2007. Development and Comparison of Vehicular Live Loads on Highway Bridge in China. *Shanghai Highways*, 1, 37-41.

Journal Papers under Review

- J49. Zhang, M., **Wu, T.*** and Xu, F., 2018. Vortex-induced vibration of bridge decks: describing function-based model. *Journal of Wind Engineering and Industrial Aerodynamics*.

- J50. **Wu, T.*** and Song, W., 2018. Real-Time Aerodynamics Hybrid Simulation: Wind-Induced Effects on a Reduced-Scale Building Equipped with Full-Scale Dampers. *Journal of Wind Engineering and Industrial Aerodynamics*.
- J51. He, X., **Shi, K** and **Wu, T.***, 2018. An Efficient Analysis Framework for High-Speed Train-Bridge Coupled Vibration under Nonstationary Track Irregularities and Winds. *Journal of Rail and Rapid Transit*.
- J52. **Hao, J.** and **Wu, T.***, 2018. Numerical Analysis of Long-span Bridge Response to Tornado Events. *Journal of Fluids and Structures*.
- J53. **Wu, T.***, **Li, S.** and Sivaselvan, M., 2018. , Real-Time Aerodynamics Hybrid Simulation: A Novel Wind-Tunnel Model for Flexible Bridges, *ASCE Journal of Engineering Mechanics*.
- J54. Li, L., **Wu, T.***, **Wang, H.**, Xiao, Y. and Song, L., 2018. A Unified Analysis Framework for Wind Characteristics of Typhoons and Hurricanes Based on Field Measurement Data. *Frontiers of Structural and Civil Engineering*.
- J55. Zheng, C., Liu, Z., **Wu, T.***, **Wang, H.**, Wu, Y., Shi, X., 2018. Experimental Investigation of Vortex-Induced Vibration of a Thousand-Meter-Scale Megatall Building. *Journal of Fluids and Structures*.

Books

- B1. Kareem, A. and **Wu, T.**, 2016. Bluff Body Aerodynamics and Aeroelasticity: Nonstationary, Non-Gaussian and Nonlinear Features. In: Braza, M., Bottaro, A. and Thompson, M. (eds.), *Advances in Fluid-Structure Interaction*. Springer International Publishing, Switzerland.
- B2. **Wu, T.** and Kareem, A., 2014. *Nonlinear Bluff-Body Aerodynamics: Analysis, Modeling and Applications*. LAP LAMBERT Academic Publishing, Saarbrücken, Germany.

Other Publications

- O1. **Wu, T.**, 2016. Bluff Body Aerodynamics: From Linear to Nonlinear. *MOJ Civil Engineering*, 1(2), 29–30. (**Editorial**)
- O2. **Wu, T.**, 2015. Nonlinear Bluff-Body Aerodynamics. *IABSE Structural Engineering International*, 25(2), 230. (**PhD Abstracts**)
- O3. **Wu, T.** and Kareem, A., A Nonlinear Analysis Framework for Bluff-Body Aerodynamics: From Navier-Stokes Equations to Volterra Systems. *Newsletter of American Association for Wind Engineering*. November, 2013.

Conference Papers

- C1. Nejadkhaki, H., Hall, J., Zheng, M. and **Wu, T.**, Integrative Modeling Platform for Design and Control of an Adaptive Wind Turbine Blade. In: *Proceedings of the ASME 2018 Dynamic Systems and Control Conference (DSCC201)*, September, 2018, Atlanta, Georgia, USA.
- C2. Argentini, T., Diana, G., Omarini, S., Rocchi, D., Aas-Jakobsen, K., Allsop, A., Kavrakov, I., Larsen, A., Øiseth, O., Svendsen, M., Larose, G., Kim, H., Hernández, S., **Wu, T.**, Andersen, M. and Katsuchi, H., Super-Long Span Bridge Aerodynamics: First Results of the Numerical Benchmark Tests from Working Group 10. In: *Proceedings of 40th IABSE Symposium – Tomorrow's Megastructures*, September, 2018, Nantes, France.
- C3. Snaiki, R. and **Wu, T.**, A New Boundary Layer Wind Field Model for Landfalling Hurricanes. In: *Proceedings of 10th International Conference on Urban Climate/14th Symposium on the Urban Environment*, August, 2018, New York, NY, USA. (**Poster presentation**)
- C4. Song, W. and **Wu, T.**, Damper Performance under Winds: A Real-Time Hybrid Simulation Platform-based Evaluation. In: *Proceedings of 7th World Conference on Structural Control and Monitoring (7WCSCM)*, July, 2018, Qingdao, China.

- C5. Shi, K., He, X. and **Wu, T.**, Coupled Vibration Analysis of Train-Track-Bridge System under Winds: A Structural Periodicity-Based Efficient Precise Integration Method. *In: Proceedings of 7th World Conference on Structural Control and Monitoring (7WCSCM)*, July, 2018, Qingdao, China.
- C6. Li, T., **Wu, T.**, Zhang, W. and Liu, Z., Simulation of Nonlinear Bridge Aerodynamics Based on A Long Short-Term Memory Neural Network. *In: Proceedings of 7th International Symposium on Computational Wind Engineering (CWE2018)*, June, 2018, Seoul, Republic of Korea.
- C7. **Wu, T.** and Song, W., Real-Time Aerodynamics Hybrid Simulation: Wind-induced Effects on Reduced-Scale Buildings Equipped with Full-Scale Dampers. *In: Proceedings of 7th International Symposium on Computational Wind Engineering (CWE2018)*, June, 2018, Seoul, Republic of Korea.
- C8. **Wu, T.**, Li, S. and Sivaselvan, M., Real-Time Aerodynamics Hybrid Simulation: A Novel Wind-Tunnel Model for Flexible Bridges. *In: Proceedings of 2018 Conference of Engineering Mechanics Institute (EMI 2018)*, Cambridge, Massachusetts, USA. (**Abstract**)
- C9. Wang, H. and **Wu, T.**, Nonstationarity Index of Winds: A Hilbert-Wavelet-based Approach. *In: Proceedings of 2018 Conference of Engineering Mechanics Institute (EMI 2018)*, Cambridge, Massachusetts, USA. (**Abstract**)
- C10. Wang, H. and **Wu, T.**, Fast Simulation of Multivariate Nonstationary Processes with Time-varying Correlation. *In: Proceedings of 2018 Conference of Engineering Mechanics Institute (EMI 2018)*, Cambridge, Massachusetts, USA.
- C11. Snaiki, R. and **Wu, T.**, An Improved Methodology for Risk Assessment of Tropical Cyclones under Changing Climate. *In: Proceedings of 33rd Conference on Hurricanes and Tropical Meteorology*, April, 2018, Ponte Vedra, FL, USA. (**Poster presentation**)
- C12. Shi, K., He, X. and **Wu, T.**, An Efficient Analysis Framework for High-Speed Train-Bridge Coupled Vibration under Nonstationary Track Irregularities and Winds. *In: Proceedings of International Forum on High-Speed Railway*, December, 2017, Changsha, China. (**Abstract**)
- C13. He, X., Gai, Y. and **Wu, T.**, Simulation of Train-Bridge Interaction under Wind Loads: A Rigid-Flexible Coupling Approach. *In: Proceedings of 2nd International Conference on Industrial Aerodynamics (ICIA2017)*, October, 2017, Qingdao, China.
- C14. **Wu, T.**, Changing Bridge Aerodynamics under Nonstationary Winds. *In: Proceedings of 39th IABSE Symposium – Engineering the Future*, September, 2017, Vancouver, Canada.
- C15. He, X., Shi, K. and **Wu, T.**, An Integrated Structural Health Monitoring System for the Xijiang High-Speed Railway Arch Bridge. *In: Proceedings of the 2017 World Congress on Advances in Structural Engineering and Mechanics*, September, 2017, Seoul, Korea.
- C16. He, X., Gai, Y., Liu, Y., Zou, Y., Jing, H. and **Wu, T.**, Simulation of the Train-Bridge Vibration under Wind Loads Using a Rigid-Flexible Coupling Method. *In: Proceedings of First International Conference on Rail Transportation*, July, 2017, Chengdu, China.
- C17. Zou, S., He, X., **Wu, T.**, Zou, Y. and Jing, H., Numerical Simulation of Aerodynamic Characteristics of Wind-Vehicle-Bridge System. *In: Proceedings of First International Conference on Rail Transportation*, July, 2017, Chengdu, China.
- C18. Snaiki, R. and **Wu, T.**, A Theoretical Model for Rapid Estimates of Rainfall during Tropical Cyclones. *In: Proceedings of 13th Americas Conference on Wind Engineering (13ACWE)*, May, 2017, Gainesville, FL, USA.
- C19. Wang, H. and **Wu, T.**, Gust-Front Factor: A Case Study of Tropical Cyclone-Induced Wind Load Effects on Tall Buildings. *In: Proceedings of 13th Americas Conference on Wind Engineering (13ACWE)*, May, 2017, Gainesville, FL, USA.
- C20. Hao, J. and **Wu, T.**, Non-Synoptic Wind-Induced Response of Long-Span Bridges: A Hybrid CFD-CSD-based Approach. *In: Proceedings of 13th Americas Conference on Wind Engineering (13ACWE)*, May, 2017, Gainesville, FL, USA. (**Abstract**)

- C21. Wu, T. and Sivaselvan, M., Real-Time Aerodynamics Hybrid Simulation: A Novel Aeroelastic Wind-Tunnel Model for Flexible Bridges. *In: Proceedings of 13th Americas Conference on Wind Engineering (13ACWE)*, May, 2017, Gainesville, FL, USA. (**Abstract**)
- C22. Snaiki, R. and **Wu, T.**, Dynamic Interaction of Wind and Rain Fields in the Boundary Layer of a Tropical Cyclone. *In: Proceedings of Engineering Mechanics Institute Conference 2017 (EMI 2017)*, June, 2017, San Diego, CA, USA.
- C23. Li, L., **Wu, T.**, Xiao, Y. and Song, L., Turbulent Wind Characteristics of Tropical Cyclones Based on A Revised Uniform Analysis Framework. *In: Mechanics of Structures and Materials XXIV - Proceedings of the 24th Australian Conference on the Mechanics of Structures and Materials (ACMSM24)*, 2016, Perth, Australia.
- C24. Hao, J. and **Wu, T.**, Tornado-Induced Effects on Aerostatic and Aeroelastic Behaviors of Long-Span Bridge. *In: Proceedings of the 2016 World Congress on Advances in Civil, Environmental, and Materials Research*, 2016, Jeju Island, Korea.
- C25. **Wu, T.**, Effects of Nonstationarity on Nonlinear Bridge Aerodynamics. *In: Proceedings of 8th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVIII)*, June, 2016, Boston, USA.
- C26. Snaiki, R. and **Wu, T.**, Temperature and Moisture Effects on the Tropical Cyclone Boundary Layer: Pressure and Wind Fields. *In: Proceedings of 8th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVIII)*, June, 2016, Boston, USA.
- C27. Wang, H. and **Wu, T.**, Nonstationary Wind Velocity Field with Multi-Scale Spatial Correlation: Simulation and Validation. *In: Proceedings of 8th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVIII)*, June, 2016, Boston, USA.
- C28. Hao, J. and **Wu, T.**, Non-Synoptic Wind-Induced Effects on Linear Bluff-Body Aerodynamics. *In: Proceedings of 8th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVIII)*, June, 2016, Boston, USA.
- C29. Li, S., **Wu, T.**, Huang, T. and Z. Chen, Aerodynamic Stability of Iced Stay Cables on Cable-Stay Bridge. *In: Proceedings of 8th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVIII)*, June, 2016, Boston, USA. (**Poster presentation**)
- C30. Snaiki, R. and **Wu, T.**, A Simplified Analytical Wind-Field Model for Hurricane Boundary Layer. *In: Proceedings of Engineering Mechanics Institute Conference 2016 (EMI 2016) and the Probabilistic Mechanics & Reliability Conference 2016 (PMC 2016)*, May, 2016, Nashville, TN, USA.
- C31. Snaiki, R. and **Wu, T.**, Temperature and Moisture Effects on the Hurricane Wind Field Based on a Simplified Model. *In: Proceedings of Engineering Mechanics Institute Conference 2016 (EMI 2016) and the Probabilistic Mechanics & Reliability Conference 2016 (PMC 2016)*, May, 2016, Nashville, TN, USA. (**Abstract**)
- C32. **Wu, T.**, Simulation of Nonstationary Wind Velocity Field Utilizing Multi-Scale Spatial Correlation Nested Hilbert-Wavelet Scheme. *In: Proceedings of the 14th International Conference on Wind Engineering (ICWE14)*, June 2015, Porto Alegre, Brazil.
- C33. Kwon, D.K., **Wu, T.**, Njoroge, S., Kijewski-Correa, T., Taflanidis, A., Krusche, M., Vrdeman II, C., Kennedy, A. and Kareem, A., CyberEye: An Integrated Cyber-Infrastructure to Support Rapid Hurricane Risk Assessment. *In: Proceedings of the 14th International Conference on Wind Engineering (ICWE14)*, June 2015, Porto Alegre, Brazil.
- C34. Xu, F., **Wu, T.**, Ying, X. and Kareem, A., Investigation on Higher-Order Components of Self-Excited Drag Force for Bridge Decks. *In: Proceedings of the 14th International Conference on Wind Engineering (ICWE14)*, June 2015, Porto Alegre, Brazil.

- C35. Wang, H., **Wu, T.**, Cheng, H., Zhang, Y., Li, A. and Kareem, A., Nonstationary Analysis of Measured Strong Wind Characteristics Based on SHMS of Sutong Bridge. *In: Proceedings of the 6th World Conference on Structural Control and Monitoring (6WCSCM)*, July, 2014, Barcelona, Spain.
- C36. Gibbs, M., Sipple, J., Stauffer, E., Jennings, M., **Wu, T.**, Trost, D., Morgenthal, G., Aschermann, S. and Kareem, A., Dynamic Characteristics of Suspension Footbridges: A Novel Sensing Approach. *In: Proceedings of the 6th World Conference on Structural Control and Monitoring (6WCSCM)*, July, 2014, Barcelona, Spain.
- C37. **Wu, T.**, Wang, H., Kareem, A. and Zhang, Y., Conditional Simulation of Nonstationary Wind Velocity Fields in Wavelet Domain: Application to Buffeting Analysis of Sutong Bridge. *In: Proceedings of the 6th World Conference on Structural Control and Monitoring (6WCSCM)*, July, 2014, Barcelona, Spain. (**Abstract**)
- C38. **Wu, T.** and Kareem, A., A Low-Dimensional Model for Nonlinear Bluff-Body Aerodynamics: A Peeling-An-Onion Analogy. *In: Proceedings of Sixth International Symposium on Computational Wind Engineering (CWE2014)*, June, 2014, Hamburg, Germany.
- C39. Kareem, A. and **Wu, T.**, Bluff Body Aerodynamics and Aeroelasticity: Nonstationary, Non-Gaussian and Nonlinear Features. *In: Proceedings of International Symposium on Unsteady Separation in Fluid-Structure Interaction, European Research Community of Fluids, Turbulence and Combustion (ERCOFTAC)*, June, 2013, Mykonos, Greece. (**Invited Keynote Lecture**)
- C40. Yang, Y., **Wu, T.**, Ge, Y. and Kareem, A., Aerodynamic Stabilization Mechanism of Twin Box Girder with Various Slot Widths. *In: Proceedings of 7th New York City Bridge Conference*, August, 2013, New York, USA.
- C41. **Wu, T.** and Kareem, A., Volterra Series Based Model for Vortex-Induced Vibration of Bridge Decks. *In: Proceedings of 6th European and African Conference on Wind Engineering*, July, 2013, Cambridge, UK.
- C42. **Wu, T.** and Kareem, A., A Nonlinear Analysis Framework of Bluff-Body Aerodynamics: Solution to Navier-Stokes Equations Using Volterra Theory. *In: Proceedings of 12th Americas Conference on Wind Engineering (12ACWE)*, June, 2013, Seattle, Washington, USA.
- C43. **Wu, T.** and Kareem, A., Revisiting Convolution Scheme in Bridge Aerodynamics: A Comparison of Indicial and Impulse Responses. *In: Proceedings of 12th Americas Conference on Wind Engineering (12ACWE)*, June, 2013, Seattle, Washington, USA.
- C44. Spence, S.M.J., Bernardini, E., Wei, D., Bobby, S., Kareem, A. and **Wu, T.**, A Low-Dimensional Model for the Aerodynamic Shape Optimization of Tall Buildings. *In: Proceedings of 12th Americas Conference on Wind Engineering (12ACWE)*, June, 2013, Seattle, Washington, USA.
- C45. **Wu, T.** and Kareem, A., A Sparse Third-Order Volterra Model to Simulate Nonlinear Bridge Aerodynamics. *In: Proceedings of 11th International Conference on Structural Safety & Reliability (ICOSSAR 2013)*, June, 2013, New York, USA.
- C46. Yin, C., **Wu, T.** and Kareem, A., Stochastic Simulation of Wind-Related Processes with Intermittency. *In: Proceedings of 11th International Conference on Structural Safety & Reliability (ICOSSAR 2013)*, June, 2013, New York, USA.
- C47. Kareem, A. and **Wu, T.**, Wind Induced Effects on Bluff Bodies in Turbulent Flows: Nonstationary, Non-Gaussian and Nonlinear Features. *In: Proceedings of 7th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVII)*, September, 2012, Shanghai, China. (**Invited Keynote Lecture**)
- C48. **Wu, T.** and Kareem, A., Comparison of Various Modeling Schemes for Bridge Aerodynamics and Aeroelasticity. *In: Proceedings of 7th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVII)*, September, 2012, Shanghai, China.

- C49. **Wu, T.**, Kareem, A. and Li, S., Excitation Mechanism of Rain-Wind Induced Vibration of Cables: Unsteady and Nonlinear Aspects. *In: Proceedings of 7th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVII)*, September, 2012, Shanghai, China.
- C50. Yin, C. **Wu, T.** and Kareem, A., Turbulent Simulation in Wavelet Domain Based on Log-Poisson Model: Univariate and Multivariate Wind Processes. *In: Proceedings of 7th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVII)*, September, 2012, Shanghai, China.
- C51. Carassale, L., **Wu, T.** and Kareem, A., Non-Linear Buffeting and Flutter Analysis of Bridges: A Frequency Domain Approach. *In: Proceedings of 7th International Colloquium on Bluff-Body Aerodynamics and its Application (BBAAVII)*, September, 2012, Shanghai, China.
- C52. **Wu, T.** and Kareem, A., Nonlinear Aerodynamic and Aeroelastic Analysis Framework for Cable-Supported Bridges. *In: Proceedings of 3rd American Association for Wind Engineering Workshop*, August, 2012, Hyannis, Massachusetts, USA.
- C53. **Wu, T.** and Kareem, A., Modeling Unsteady Nonlinear Bridge Aerodynamics and Aeroelasticity. *In: 2012 NSF CMMI Engineering Research and Innovation Conference*, July, 2012, Boston, Massachusetts, USA. (**Poster presentation**)
- C54. **Wu, T.** and Kareem, A., Bridge Aerodynamics in Time Domain: Indicial and Impulse Responses. *In: Proceedings of 2012 Joint Conference of the Engineering Mechanics Institute and the 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability*, June, 2012, Notre Dame, IN, USA.
- C55. **Wu, T.** and Kareem, A., Volterra Series-Based Nonlinear Oscillator for Vortex-Induced Vibration Modeling. *In: Proceedings of 2012 Joint Conference of the Engineering Mechanics Institute and the 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability*, June, 2012, Notre Dame, IN, USA.
- C56. Yin, C., **Wu, T.** and Kareem, A., Simulation of Turbulent Fluctuations via Random Cascade Model. *In: Proceedings of 2012 Joint Conference of the Engineering Mechanics Institute and the 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability*, June, 2012, Notre Dame, IN, USA. (**Abstract**)
- C57. Carassale, L., **Wu, T.** and Kareem, A., Non-Linear Analysis of Bridge Aerodynamics and Aeroelasticity: A Frequency Domain Approach. *In: Proceedings of 2012 Joint Conference of the Engineering Mechanics Institute and the 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability*, June, 2012, Notre Dame, IN, USA. (**Abstract**)
- C58. **Wu, T.** and Kareem, A., Modelling of Nonlinear Bridge Aerodynamics and Aeroelasticity: A Convolution based Approach. *In: Proceedings of International Conference on Structural Nonlinear Dynamics and Diagnosis*, April, 2012, Marrakech.
- C59. **Wu, T.** and Kareem, A., Nonlinear Modeling of Bridge Aerodynamics. *In: Proceedings of 13th International Conference on Wind Engineering (ICWE13)*, July, 2011, Amsterdam, the Netherlands.
- C60. **Wu, T.** and Kareem, A., Modeling Non-Linear Hysteretic Behavior of Bridge Aerodynamics via An Artificial Neural Network. *In: Proceedings of Fifth International Symposium on Computational Wind Engineering (CWE2010)*, May, 2010, Chapel Hill, North Carolina, USA.
- C61. Cao, F., Ge, Y. and **Wu, T.**, Modeling of Vortex-Induced Vibration on Cable Stayed Bridge with Steel Box Beam and Its Aerodynamic Control. *In: Proceedings of 13th National Conference on Structural Wind Engineering*, October, 2007, Dalian, China.

Selected Invited Lectures & Seminars

1. *University of Western Ontario*, Civil and Environmental Engineering, London, ON, Canada, 05/15/2018
2. *RWDI (Rowan Williams Davies & Irwin Inc.)*, Guelph, ON, Canada, 05/04/2018
3. *Rensselaer Polytechnic Institute*, Department of Civil & Environmental Engineering, 04/04/2018

- Troy, NY, USA.
4. *Politecnico di Milano*, Dipartimento di Meccanica, Milano, Italy. 03/12/2018
 5. *University of Genoa*, Department of Civil, Chemical and Environmental Engineering, Genoa, Italy. 03/08/2018
 6. *Tongji University*, State Key Laboratory of Disaster Reduction in Civil Engineering, Shanghai, P.R. China. 12/20/2017
 7. *Southwest Jiaotong University*, Key Laboratory for Wind Engineering of Sichuan Province, Chengdu, Sichuan, P.R. China. 08/14/2017
 8. *Shenzhen University*, College of Civil Engineering, Shenzhen, Guangzhou, P.R. China. 08/09/2017
 9. *Central South University*, National Engineering Laboratory for High Speed Railway Construction, Changsha, Hunan, P.R. China. 05/28/2017
 10. *Hunan University*, Key Laboratory for Wind and Bridge Engineering of Hunan Province, Changsha, Hunan, P.R. China. 11/25/2016
 11. *Dalian University of Technology*, DUT-FIE International Outstanding Young Scholars Forum (2016), Dalian, Liaoning, P.R. China. 08/11/2016
 12. *University at Buffalo*, Department of Mechanical and Aerospace Engineering, Buffalo, NY, USA. 05/12/2016
 13. *Tongji University*, The Fifth International Workshop on Structural Wind Engineering, Shanghai, P.R. China. 03/21/2016
 14. *Dalian University of Technology*, School of Civil Engineering, Dalian, Liaoning, P.R. China. 01/05/2016
 15. *Beijing Jiaotong University*, School of Civil Engineering, Beijing, P.R. China. 12/21/2015
 16. *Central South University*, School of Civil Engineering, Changsha, Hunan, P.R. China. 07/07/2015
 17. *Southeast University*, School of Civil Engineering, Nanjing, Jiangsu, P.R. China. 07/20/2014
 18. *Hunan University*, College of Civil Engineering, Changsha, Hunan, P.R. China. 04/19/2014
 19. *Southwest Jiaotong University*, School of Civil Engineering, Chengdu, Sichuan, P.R. China. 04/18/2014
 20. *Tongji University*, The Third International Workshop on Structural Wind Engineering, Shanghai, P.R. China. 04/17/2014
 21. *University of Notre Dame*, FlowPAC (Institute for Flow Physics and Control) Seminar, Department of Aerospace and Mechanical Engineering, Notre Dame, IN, USA. 11/11/2011

Professional Activities and Services

Academic Activities

- *Associate Editor*
 - ASCE Journal of Bridge Engineering
 - Frontiers in Built Environment-Wind Engineering and Science
 - International Journal of Aerospace Engineering
- *Editorial Board Member*
 - Challenge Journal of Structural Mechanics
 - MedCrave Online Journal of Civil Engineering
- *Member*: Working Group 10 “Super-Long Span Bridge Aerodynamics” of the International Association for Bridge and Structural Engineering (IABSE).
- *Board Member*: International Joint Research Laboratory in Wind Engineering.

- *Member of Academic Committee:* International Joint Research Laboratory of Rail Transportation Safety.
- *Member of Scientific Committee*
 - 8th International Colloquium on Bluff-Body Aerodynamics and Applications (BBAAVIII), USA, 2016
 - 13th Americas Conference on Wind Engineering (ACWE), USA, 2017
 - International Forum on High-Speed Railway (IFHR 2017), China, 2017
 - IABSE Congress, USA, 2019
- *Reviewer/Panelist:* Research Proposals for the US National Science Foundation (NSF).
- *External Reviewer:* PhD Dissertation of Mr. Lorenzo Banfi, University of Genoa, Italy.
- *Professional Membership*
 - American Society of Civil Engineers (ASCE)
 - International Association for Bridge and Structural Engineering (IABSE)
 - American Association for Wind Engineering (AAWE)
 - Wind Engineering Division's Structural Wind Engineering Committee, ASCE
 - Performance Based Wind Engineering Committee, ASCE
 - Wind Speed Estimation Committee, ASCE
 - EMI (Engineering Mechanics Institute) Computational Mechanics Committee, ASCE; EMI Dynamics Committee, ASCE; EMI Fluid Dynamics Committee, ASCE; EMI Probabilistic Methods Committee, ASCE; EMI Structural Health Monitoring and Control Committee, ASCE.
- *Reviewer:* Advances and Applications in Fluid Mechanics; Advances in Mechanical Engineering; Advances in Structural Engineering; ASCE Journal of Bridge Engineering; ASCE Journal of Engineering Mechanics; ASCE Journal of Structural Engineering; Bulletin of Earthquake Engineering; Computer Communication & Collaboration; Engineering; Engineering Structures; Environmental Fluid Mechanics; International Journal of Distributed Sensor Networks; International Journal of Structural Stability and Dynamics; Journal of Aerospace Engineering; Journal of Applied Mechanical Engineering; Journal of Fluids and Structures; Journal of Vibration and Control; Journal of Wind Engineering and Industrial Aerodynamics; Journal of Zhejiang University-SCIENCE A; Mathematical Problems in Engineering; Nonlinear Dynamics; Palgrave Communications; Proceedings of the Royal Society A; Structural Health Monitoring; Smart Structures and Systems; Wind & Structures; Transportation Research Record.