



6th AAWE Workshop Program

Wednesday May 12

11:00-11:10 10:00-10:10 9:00-9:10 8:00-8:10	Welcome and workshop opening	
11:10-12:10 10:10-11:10 9:10-10:10 8:10-9:10	Keynote I Dr. Anne Cope (Chair, Dr. Marc Levitan) “The impact of full-scale testing at the IBHS Research Center and critical needs in wind research for homes & businesses”	
12:10-1:50 11:10-12:50 10:10-11:50 9:10-10:50	Parallel Session I	
	Modelling and AI (Chair Dr. M.Z. Naser)	Field Studies I (Chair Dr. Dorothy Reed)
12:10-12:22 11:10-11:22 10:10-10:22 9:10-9:22	(041) “Statistical Investigation of Wind Duration Using A Refined Hurricane Track Model” Wang & Wu	(044) “Multi-event comparative analysis of common wind damage patterns from recent windstorms” Roueche & Nakayama
12:22-12:34 11:22-11:34 10:22-10:34 9:22-9:34	(077) “Data-driven simulation of asymmetric hurricane wind fields for community resilience planning” Guo & van de Lindt	(046) “Wind-induced failures and structural modeling of large-volume buildings impacted by Hurricane Michael (2018)” Marshall, Roueche, Berman, Roberts, & Blue
12:34-12:46 11:34-11:46 10:34-10:46 9:34-9:46	(015) “3D nonlinear tropical cyclone boundary layer model: From meteorological perspective to wind engineering applications” Hu & Kareem	(039) “Detection and classification of damages to civil infrastructure using a video-monitoring tool” Whiteman, Fernandez-Caban, Marin, Tezcan, Wu, & Cheng
12:46-12:58 11:46-11:58 10:46-10:58 9:46-9:58	(066) “Model for simulating extreme wind speed distribution parameters for hurricane winds” Dannemiller, Smith, & Morse	(058) “Wireless Sensor Network System Data Acquisition and Analysis using DesignSafe” Sridhar, Pinelli, Zhang, Subramanian, Wang, Sun, Lazarus, & Besing
12:58-1:10 11:58-12:10 10:58-11:10 9:58-9:10	(024) “Deep Reinforcement Learning-based Decision Support System for Transportation Infrastructure Management under Hurricane Events” Li & Wu	(061) “Development of a Wireless Sensor Network” Wang, Sun, Subrmanian, Pinelli, Lazarus
1:10-1:22 12:10-12:22 11:10-11:22 10:10-10:22	(027) “Artificial Neural Network models to study wind-induced response of large-span roofs and suspension bridges” Rizzo & Caracoglia	(062) “Validation and Calibration of a Wireless Sensor Network” Zhang, Sridhar, Subramanian, Pinelli, Lazarus, Wang, Sun, & Besing
1:22-1:34 12:22-12:34 11:22-11:34 10:22-10:34	(080) “Applicability of DAD methodology for low-rise buildings to European and Italian wind load standards” Crisman, Caracoglia, & Noè	(047) “Field monitoring the wind-induced response of a large-area fabric membrane structure” Roueche, Marshall, Stiles, Jackson, Anderson, & Davidson
1:34-1:46 12:34-12:46 11:34-11:46 10:34-10:46	(007) “Active Machine Learning in Large Scale Wind Tunnel experiments” Chauhan, Ojeda-Tuz, Shields, Gurley, & Caterilli	(079) “The 3 March 2020 Cookeville, Tennessee Tornado Damage Report” Lopez & Lombardo
	24 minute break	

2:10-3:48 1:10-2:48 12:10-1:48 11:10-12:48		Parallel sessions II	
		Computational Wind Engineering I (Chair Dr. Girma Bitsuamlak)	Structural response I (Dr. Weichiang Pang)
2:10-2:22 1:10-1:22 12:10-12:22 11:10-11:22		(003) "Modeling Natural Ventilation in Refugee Healthcare Shelters" Hochschild & Gorle	(038) "A probabilistic composite resistance model for the vertical load path in typical residential construction" Rittelmeyer & Roueche
2:22-2:34 1:22-1:34 12:22-12:34 11:22-11:34		(073) "Using the Jupyter Notebooks as a tool for CFD simulations" Ding & Kareem	(042) "Probabilistic Wind Hazard Analysis for Performance-Based Wind Design of Buildings: Hazard Curve, Wind Demand and Loading Protocol" Wang & Wu
2:34-2:46 1:34-1:46 12:34-12:46 11:34-11:46		(075) "Generation of inflow velocity field for CFD analyses using GPUs" Ding & Kareem	(018) "A component-based interior and contents hurricane vulnerability model for low-rise residential buildings" Silva de Abreu, Pinelli, Gurley, & Yarasuri
2:46-2:58 1:46-1:58 12:46-12:58 11:46-11:58		(012) "Full-scale experimental investigations on a naturally ventilated building and validation of simulation models" Chen & Gorle	(033) "Performance and Fragility of Elevated Structures During Hurricane Events" Ibrahim, Elawady, & Prevatt
2:58-3:10 1:58-2:10 12:58-1:10 11:58-12:10		(036) "Large-eddy simulations of combined wind and buoyancy driven ventilation in a slum house in Dhaka, Bangladesh" Hwang & Gorle	(051) "Fragility analysis framework for transmission tower systems subjected to straight line winds" Dikshit & Alipour
3:10-3:22 2:10-2:22 1:10-1:22 12:10-12:22		(065) "Large-eddy Simulation of Wind Loads on a Roof-mounted Cube: A Means to Interpolate Experimental Data" Melaku, Doddipatla, & Bitsuamlak	(028) "Fatigue Life and Reliability Estimation of a Traffic Signal Structure using Long-Term Monitoring Data" Tsai & Alipour
3:22-3:34 2:22-2:34 1:22-1:34 12:22-12:34		(063) "Addressing Turbulence Model Form Uncertainty" Ciarlatani, Hao, & Gorle	(059) "Performance-Based Wind Design of Tall Buildings Considering the Nonlinearity in Building Response" Hareendram, Alipour, Shafei, & Sarkar
3:34-3:48 2:34-2:48 1:34-1:48 12:34-12:48		(022) "Evaluation of a multi-fidelity simulation framework for predicting wind pressure loads on buildings" Vargiomezis & Gorle	
12 minute break			
4:00-5:00 3:00-4:00 2:00-3:00 1:00-2:00		Panel discussion I - Dr. Dorothy Reed, Dr Greg Kopp, and Dr. Teng Wu. "Future directions for wind engineering research"	
5:00-7:00 4:00-6:00 3:00-5:00 2:00-4:00		Social hours and NHERI Experimental Facility workshop	

(Time key **Eastern**, **Central**, **Mountain**, **Western**)

Thursday May 13

<p>11:00-12:00 10:00-11:00 9:00-10:00 8:00-9:00</p>	<p>Keynote II Dr. Tracy Kijewski-Correa (Chair, Dr. David Prevatt)</p> <p>“The Role of Wind Engineers in Advancing Climate-Responsive and Risk-Informed Sustainable Development: Opportunities and Responsibilities”</p>	
<p>10 minute break</p>		
<p>12:10-1:50 11:10-12:50 10:10-11:50 9:10-10:50</p>	<p>Parallel Session III</p>	
	<p>Windborne Debris (Chair Dr. Ali Tohidi)</p>	<p>Field Studies II (Chair Dr. Frank Lombardo)</p>
<p>12:10-12:22 11:10-11:22 10:10-10:22 9:10-9:22</p>	(071) “Computational methods of windborne debris trajectories in a near-surface tornadic field” Chen & Lombardo	(045) “Automation of post-windstorm reconnaissance data enrichment using web scraping and machine learning” Rawajfih & Roueche
<p>12:22-12:34 11:22-11:34 10:22-10:34 9:22-9:34</p>	(026) “Modeling windborne debris trajectories in tornadoes” Abdelhady, Spence, & McCormick	(002) “An Absolute Pressure Sensing Mote for Measuring Full-Scale Wind Pressure Loads on Buildings” Hochschild & Gorle
<p>12:34-12:46 11:34-11:46 10:34-10:46 9:34-9:46</p>	(056) “Numerical modeling of debris flight in a one-cell tornado wind field” Tohidi	(057) “Characterization of surface roughness from LIDAR and anemometer measurements of near-surface storm winds.” Besing, Lazarus, Sridhar, Wang, Subrmanian, Pinellie, Zhang, & Sun
<p>12:46-12:58 11:46-11:58 10:46-10:58 9:46-9:58</p>	(023) “Experimental and computational modeling of ember hot-spots on roofs during wildland fires” Nguyen & Kaye	(021) “Observations of the turbulent near wake of a bridge deck” Daniotti, Jacobsen, Snaebjornsson, & Cheynet
<p>12:58-1:10 11:58-12:10 10:58-11:10 9:58-9:10</p>	(008) “A stochastic model for the aerodynamics of irregularly shaped gravel” Ahsanullah & Kaye	(082) “Observations of incoming turbulent flow by dual wind lidar mounted on a bridge deck” Nafisifard, Jakobsen, Cheynet, Snaebjornsson, Sjolholm, & Mikkelsen
<p>1:10-1:22 12:10-12:22 11:10-11:22 10:10-10:22</p>	(016) Abstract withdrawn	(006) “Retrieving wind speed and direction from WSR-88D single-Doppler measurements of thunderstorm winds” Ibrahim, Kopp, & Sills
<p>1:22-1:34 12:22-12:34 11:22-11:34 10:22-10:34</p>	(068) “Vulnerability Assessment of Structural Insulated Panels Subjected to Windborne Debris Impact” Saini & Shafei	(043) “Integrating survivor stories, tornado wind field models, and forensic investigations to reconstruct tornado events” Howie, Roueche, Lombardo, LaDue, & Mayeux
<p>1:34-1:46 12:34-12:46 11:34-11:46 10:34-10:46</p>	(078) “An analytical study into the performance of cross-laminated timber structures subject to tornado events” Stoner & Pang	(070) “Tornado Wind Speed Estimation Methods in Rural Forested Regions: The Alonsa, MB Tornado” Rhee, Stevenson, Lombardo, & Kopp

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<p>2:10-3:48 1:10-2:48 12:10-1:48 11:10-12:48</p>	Parallel sessions IV	
	Computational Wind Engineering II (Chair Dr. Catherine Gorle)	Wind Tunnels I (Chair Dr. David Roueche)
<p>2:10-2:22 1:10-1:22 12:10-12:22 11:10-11:22</p>	(014) “New Model for Rain-Induced Interior and Contents Damage to Mid/High-Rise Buildings During Hurricane Events” Wei, Pinelli, Aghli, Jia, & Gurley	(034) “Wind Performance of Asphalt Shingles Using Full-Scale Experimentation” Tolera, Mostafa, Chowdhury, & Zisis
<p>2:22-2:34 1:22-1:34 12:22-12:34 11:22-11:34</p>	(025) “High Frequency Effect on Peak Pressure Computation on the TTU Building Using Synthetic Inflow Turbulence Generator” Mansouri & Selvam	(054) “Peak Wind Effects on Low-Rise Building Roofs and Rooftop PV Arrays” Braun, Chen, Chowdhury, Estephan, Gordon, Irwin, Johnson, Kennedy, Lyman, Raney, Reed, Sanford, & Wang
<p>2:34-2:46 1:34-1:46 12:34-12:46 11:34-11:46</p>	(029) “Numerical investigation of wind actions on elevated houses” Abdelfatah & Elawady	(049) “Wind speed maximum sustained, mean and gust factor comparison using publicly available H*WIND and Texas Tech University Hurricane Research Team data” Dannemiller, Smith, & Morse
<p>2:46-2:58 1:46-1:58 12:46-12:58 11:46-11:58</p>	(009) “A highly efficient and strictly divergence-free inlet flow generation method” Wang & Cai	(031) “Development of Standard Test Considering Pressure Equalization for Discontinuous Metal Roof (DMR) Systems.” Lafontaine, Afanasyeva, & Prevatt
<p>2:58-3:10 1:58-2:10 12:58-1:10 11:58-12:10</p>	(064) “Hurricane Maria Hindcast Using WRF-LES: A Preliminary Comparison of Topographic Wind Speed-Up” Aponte-Bermudez, Masters, Santiago-Hernandez, & Cruz-Garcia	(019) “A partial-turbulence approach to estimate peak pressures on low-rise buildings with flat roofs” Guo, Wu, & Kopp
<p>3:10-3:22 2:10-2:22 1:10-1:22 12:10-12:22</p>	(067) “Time Variant Hurricane Modeling in Performance-based Wind Engineering” Ouyang & Spence	(013) “Examination of gust effect factor for side walls of rigid low-, mid-, and high-rise buildings” Wang & Kopp
<p>3:22-3:34 2:22-2:34 1:22-1:34 12:22-12:34</p>	(055) “Wind Effect on Structures: CFD Modelling of Wing Flow over Complex Terrain” Martinez & Aponte-Bermudez	
<p>3:34-3:48 2:34-2:48 1:34-1:48 12:34-12:48</p>	(050) “On the computational efficiency of LES and hybrid RANS-LES models in building aerodynamics” Khaled & Aly	
12 minute break		
<p>4:00-5:00 3:00-4:00 2:00-3:00 1:00-2:00</p>	Panel Discussion II - Dr. Peter Datin (RMS), Dr. Maryam Asghari Mooneghi (AECOM), and Dr. Viet Le (ARUP). “Wind Engineering Practice”	
<p>5:00-7:00 4:00-6:00 3:00-5:00 2:00-4:00</p>	Social hours and NHERI Design Safe workshop	

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Friday May 14

<p>11:00-12:00 10:00-11:00 9:00-10:00 8:00-9:00</p>	<p>Keynote III Dr. Dr. Pedro Fernandez-Caban (Chair, Dr. Amal Elawady)</p> <p>“Enhancing the Wind Performance of Civil Infrastructure Through “Online” Cyber-Physical Wind Tunnel Simulation”</p>	
<p>10 minute break</p>		
<p>12:10-1:22 11:10-12:22 10:10-11:22 9:10-10:22</p>	<p>Parallel Session V</p>	
	<p>Structural response II (Chair Dr. Ioannis Zisis)</p>	<p>Wind Tunnels II (Chair Dr. Chris Letchford)</p>
<p>12:10-12:22 11:10-11:22 10:10-10:22 9:10-9:22</p>	<p>(032) “A Scenario-based Hurricane Analysis Framework for Community-level Building Damage Estimation” Mazumder, Dumler, Enderami, & Sutley</p>	<p>(052) “Drag coefficients for open frame steel structures under extreme wind events” Ou & Pang</p>
<p>12:22-12:34 11:22-11:34 10:22-10:34 9:22-9:34</p>	<p>(053) “High-Fidelity Probabilistic Collapse Assessment of Tall Steel Buildings under Extreme Winds” Arunachalam & Spence</p>	<p>(001) “Investigation of irregular-shaped buildings and their pressure distribution” Matus & Zisis</p>
<p>12:34-12:46 11:34-11:46 10:34-10:46 9:34-9:46</p>	<p>(072) “Probabilistic assessment of the nonlinear response of the 20-story SAC building under extreme wind loads through collapse” Ghaffay & Moustafa</p>	<p>(005) “Design and development of a new Boundary Layer Wind Tunnel at Florida International University” Matus, Mostafa, Sarma, Schwartz, & Zisis</p>
<p>12:46-12:58 11:46-11:58 10:46-10:58 9:46-9:58</p>	<p>(076) “Wind-induced response of buildings incorporating nonlinear fluid-structure interaction effects” Ghaffary & Moustafa</p>	<p>(040) “Aerodynamic testing and response evaluation of a large-scale high-rise building model at a high Reynolds number” Aly & Chapain</p>
<p>12:58-1:10 11:58-12:10 10:58-11:10 9:58-9:10</p>	<p>(010) “Structural Fragility Analysis of Tall Buildings and Towers via Artificial Neural Network Surrogate Modeling” Zhang & Caracoglia</p>	<p>(048) “Aerodynamics of low-rise buildings: large scale open-jet testing to address Reynolds number effects” Aly & Khaled</p>
<p>1:10-1:22 12:10-12:22 11:10-11:22 10:10-10:22</p>	<p>(004) “Stochastic flutter analysis of wind turbine blades via surrogate models: Artificial Neural Networks vs. Stochastic Collocation” Li and Caracoglia</p>	<p>(083) “Experimental Investigation of the Aerodynamics and Wind Loading of Buildings with Balconies” Ludena, Mooneghi, Chowdhury, & Irwin</p>
<p>28 minute break</p>		

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1:50-2:50 12:50-1:50 11:50-12:50 10:50-10:50	Parallel Session VI	
	Structural response III (Chair Dr. Luca Caracoglia)	Wind Tunnels III (Chair Dr. Murray Morrison)
1:50-2:02 12:50-1:02 11:50-12:02 10:50-11:02	(011) “Estimation and Characterization of Nonstationary Inelastic Crosswind Responses of Base-Isolated Tall Buildings” Feng & Chen	(035) “Differences in flow structures of tornado vortex and efficiency of different tornado chambers” Verma & Selvam
2:02-2:14 1:02-1:14 12:02-12:14 11:02-11:14	(074) “Impact of Extreme Wind Loads on Sliding Glass Doors” Moravej, Arya, Sirmsir, & Jain	(017) “Uncertainty Quantification of Wind-tunnel Tests of a Low-Rise Building Model using the NIST Aerodynamic Database” Hubbard, Shelley, & Zhang
2:14-2:26 1:14-1:26 12:14-12:26 11:14-11:26	(020) “Assessment of load path through residential roofs using full-scale wind tunnel measurements” Stevenson, Morrison, & Kopp	(037) “Critical Evaluation of Roof Pressure Statistics over an Isolated Low-rise Building using NIST and TPU Aerodynamic Databases” Shelley, Hubbard, & Zhang
2:26-2:38 1:26-1:38 12:26-12:38 11:26-11:38	(081) “Fatigue performance of wood frame roof-to-wall connections with elastomeric adhesives under uplift cyclic loading” Alhawamdeh & Shao	(069) “A probabilistic loading model including the vertical angle of attack to estimate tornado loading” Zaldivar de Alba, Lombardo, Bodine, & Reinhart
2:38-2:50 1:38-1:50 12:38-12:50 11:38-11:50	(030) “Wind uplift resistance of Vinyl Siding- a standardized test protocol for multi-chamber pressure application” Lafontaine, Roueche, & Prevatt	(060) “Full-Scale Wind Testing to Determine the Role of Vertical Protrusions on Curtain wall Performance” Alawode, Vutukuru, Elawady, Chowdhury, & Lori
	10 minute break	
3:00-4:00 2:00-3:00 1:00-2:00 12:00-1:00	Funding Options for Wind Engineering Joy Pauschke, National Science Foundation program director	
	15 minute break	
4:15-5:00 3:15-4:00 2:15-3:00 1:15-2:00	AAWE Quadrennial Awards Ceremony and Workshop Closing	
5:00-7:00 4:00-6:00 3:00-5:00 2:00-4:00	Social hours	

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