

2017 NSF NHERI User Workshop

University of Florida NHERI EF UC-Berkeley Computational Modeling and Simulation Center

June 29-30, 2017
University of Florida

The University of Florida Experimental Facility (EF) and UC-Berkeley SimCenter will jointly host the 2017 NHERI User Workshop, with UF coordinating the travel arrangements and conference hosting. The workshop will introduce potential NHERI users (participants) to the facilities offered by these two NHERI entities. The theme of this workshop is to promote the coordinated use of the computational modeling and simulation software tools offered by the SimCenter with the experimental facilities at the UF NHERI EF. A primary topic will be the development of cyberphysical approaches in wind engineering research, with emphasis on introducing the real-time hybrid simulation methods that originated from earthquake engineering.

We are targeting a diverse participant group that includes but is not limited to researchers with expertise in structural, wind, seismic or hazard engineering, fluid dynamics, optimization, cyberphysical testing, computation modeling. An experimental background is not required.

The limited participant slots and support funds are reserved for faculty eligible to submit grants to NSF as of September 2017. Priority will be given to those applicants indicating a strong desire to submit an NSF proposal to utilize the UF NHERI EF and/or UC-Berkeley SimCenter. Spring 2017 proposal submitters will be given top priority.

The workshop program will take place over 1 ½ days. Significant personalized attention will be given to the participants, and the workshop technical contents customized for the participant group.

Organizing Committee

Forrest Masters	Director UF NHERI EF	Chair
Jennifer Rice	Deputy Director UF NHERI EF	Organizer
Kurt Gurley	Associate Director UF NHERI EF	Organizer
David Prevatt	Associate Director UF NHERI EF	Organizer
Steve Mahin	Director UC-Berkeley SimCenter	Organizer

Participant Contacts

Kurt Gurley	Associate Director UF NHERI EF	kgurl@ce.ufl.edu
Judith Strack	Business Administrator UF NHERI EF	Judith.strack@essie.ufl.edu

www.designsafe-ci.org

Workshop Agenda

Arrival Day – June 28, 2017	
Afternoon	Participants arrive in Gainesville Hotel check-in Hampton Inn & Suites Gainesville-Downtown
Evening	Workshop committee / participant dinner Gainesville-Downtown
Day 1 – June 29, 2017	
Morning	UF NHERI EF tour and technical briefing
Afternoon	Working lunch, workshop program (below)
Evening	Workshop committee / participant dinner
Day 2 – June 30, 2017	
Morning	Workshop program continued (below), additional facilities access
Afternoon	Working lunch, PI/participant discussions, transportation to the airport as needed

Individual participants that wish to deviate from this itinerary will be accommodated as needed

Workshop Program

- The process for accessing NSF funding for EF and SimCenter use
- The science plans and major themes for the EF and SimCenter
- Safety and training requirements and policies
- Staff introductions and roles
- User services provided by EF and SimCenter staff
- Interactions with the CI (data storage and curation etc.) and other NHERI entities
- Scheduling from first contact through proposal submission and project completion
- Development of cyberphysical approaches in wind engineering research
- One-on-one PI/participant interactions
- Participant satisfaction survey

Participant Support

Airfare: Participant will coordinate with Judith Strack to arrange flights. UF NHERI will pay for flights directly. A cap on flight cost may apply.

Hotel: A block of rooms have been reserved at the Hampton Inn & Suites in Downtown Gainesville. This location is walking distance to many restaurants. Hotel accommodations will be paid for directly by UF NHERI.

Meals: Breakfasts will be taken at the hotel (included). Snacks and working lunches will be provided on both workshop days. Dinners will be at participant expense.

Stipend: Up to \$100 will be provided to cover incidental costs (parking, taxi/Uber, etc.)

UF NHERI EF Resources



Self-Configuring Hybrid Boundary Layer Wind Tunnel (BLWT)

Simulates boundary layer flows to characterize the wind loading and structural behavior, including aeroelastic response of wind-sensitive structures. Unique aspects of this facility are its large size and automated continuously adjustable terrain roughness and geometric scale of wind flow



Multi-Axis Wind Load Simulator (MAWLS)

Recreates wind load conditions associated with an intense Saffir Simpson Hurricane Wind Scale Category 5 hurricane or an EF5 tornado combined with in-plane shear or uplift. Up to a two-story wall system can be tested, which can be naturally or artificially aged prior to testing



Dynamic Flow Simulator (DFS)

The counterpart to the MAWLS, this system controls a high-speed dynamic flow simulator that recreates up to 103 m/s turbulent wind flows near the building surface to characterize the behavior of discontinuous roofing systems and other porous component & cladding elements



High Airflow Pressure Loading Actuator (HAPLA)

Simultaneously applies time-varying wind pressure and simulated effects of wind-driven rain on the horizontal building façade. Specimens can attach to the floor to investigate load path. Ideal for rapidly evaluating large test matrices and trials leading up to testing on the MAWLS



Spatiotemporal Pressure Loading Actuator (SPLA)

Uses multiple control systems to replicate heterogeneous spatiotemporal pressure loading on nonporous horizontal and vertical building systems (e.g., roof and wall corner zones), including integrated components