



NHERI@UC SAN DIEGO

LARGE HIGH-PERFORMANCE OUTDOOR SHAKE TABLE (LHPOST6)

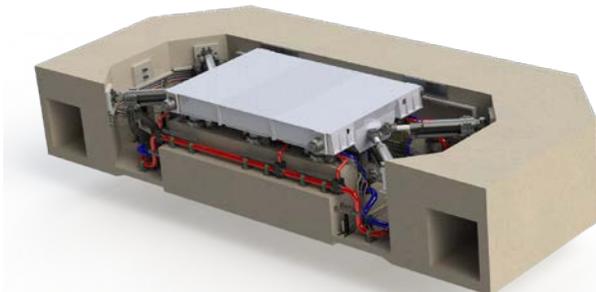


JOINT ACADEMIA-INDUSTRY NHERI WORKSHOP

The **Joint Academia-Industry UC San Diego NHERI Workshop** is a forum hosted by the NHERI@UC San Diego Large High-Performance Outdoor Shake Table (LHPOST6) Facility to bring together experts in earthquake engineering from industry and academia to identify and formulate grand challenge research needs to improve seismic design codes and standards, foster academia-industry collaborations, and map the future directions of research using the newly upgraded 6-DOF LHPOST, termed LHPOST6 thereafter, located at the UC San Diego Englekirk Structural Engineering Center.

We are inviting experts and leaders in the field, including practitioners, academics, and representatives from the construction industry to participate in the two half-day workshop. The first day will feature a series of keynote presentations by researchers, industry professionals, and code committee experts presenting their views and vision to fill the knowledge gaps in earthquake engineering. The second day will consist of thematic breakout sessions and round table discussions on the future directions for research using the LHPOST6 facility.

In 2018, through a grant from the NSF and additional financial resources from UC San Diego, the upgrade of the LHPOST to 6-DOF was initiated, making the NHERI@UC San Diego Shake Table the largest, in terms of payload capacity, 6-DOF shake table in the world. The upgrade to 6-DOF is ongoing and is expected to complete in Spring 2021. As we approach reopening, we are organizing this important workshop to engage the community and plan for research and testing to fully utilize the facility in its new 6-DOF capacity. A key objective of this workshop is to promote academia-industry relations, and ultimately map the future direction of research and operations at UC San Diego's Englekirk Structural Engineering Center (ESEC).



WHEN:

**Monday & Tuesday
8 am – 12:30 pm
September 21-22, 2020**

FORMAT:

**Hybrid in-person (limited attendance)
and online teleconference**



For the health and safety of all participants during this COVID-19 pandemic, the workshop will be held either fully online or in a hybrid format (mixture of in-person and online). The in-person component, if it can be safely accommodated, will have limited attendance and will take place in the Structures and Materials Engineering (SME) Building at UC San Diego, **from 8 am to 12:30 pm on Monday-Tuesday, September 21-22, 2020**. Additional participants can join the workshop virtually.

The LHPOST, located about 15 km east of the UC San Diego main campus, is a unique shake table facility designed in 2001-2002 through a joint effort between UC San Diego and MTS Systems Corporation and built during 2002-2004. It was built as a 1-DOF facility even though it was designed for 6-DOF. LHPOST became operational in October 2004 as part of the NSF NEES program. It is the largest outdoor shake table in the world and the second largest overall. Since the LHPOST is an outdoor shake table, it allows the testing of large specimens that other facilities cannot due to the height restrictions. With a platen 7.6m wide by 12.2m long, the LHPOST has an overall vertical payload capacity of 20MN, with a testing frequency range of 0-33 Hz. Since its commissioning, 34 landmark research and commercial projects have been conducted using this unique facility, including a full-scale segment of a seven-story reinforced concrete (RC) building, a full-scale wind turbine, a full-scale five-story RC building fully equipped with nonstructural components, large scale retaining walls, a half-scale three-story precast concrete parking structure, a full-scale bridge column and large- and full-scale brick, wood frame, masonry and metal buildings. Although these projects were mostly funded by the National Science Foundation (NSF) research programs, industry partners have been essential in these and other testing programs, including utilizing the LHPOST to test products for commercial purposes.



Testing of infrastructure at large scale under realistic multi-DOF seismic excitation is essential to fully understand the seismic response behavior of civil infrastructure systems, calibrate, validate, and improve mathematical models, and develop and verify effective methods for earthquake disaster mitigation. Research conducted using the newly upgraded LHPOST will improve design codes and construction standards, validate high-fidelity computational models, and will enable the development of accurate decision-making tools necessary to build and maintain sustainable and disaster-resilient communities. Moreover, it will support the advancement of new and innovative materials, manufacturing methods, detailing, and construction methods.

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