UC Berkeley and MTS invite you to attend this 2-day workshop and discover how hybrid simulation can enhance your seismic and civil structural research capabilities. Hybrid simulation is a set of methods for examining the seismic response of structures using a hybrid model comprised of both physical and numerical sub-structures.

Led by UC Berkeley experts, attendees will first review the basics of hybrid simulation, including similitude requirements for model design, model implementation and integration methods, and simulation result interpretation. Following demonstrations of how hybrid simulation is implemented at the nees@berkeley Equipment Site using MTS FlexTest hardware and OpenSees and OpenFresco software, attendees will have the unique opportunity to develop their own hybrid models and, with the help of UC Berkeley staff, implement and run an actual hybrid simulation. Topics such as processing and archiving hybrid simulation data will also be covered.

Register for this workshop today and learn how advanced hybrid simulation techniques developed at UC Berkeley can enhance your seismic and civil structural research activities.

- UNDERSTAND the principles of the hybrid simulation method
- EXPLORE the capabilities of OpenSees, OpenFresco and OpenSees Navigator
- GAIN hands-on experience at the nees@berkeley Equipment Site using MTS hardware
- LEVERAGE hybrid simulation for both NEES and non-NEES projects
- LEARN how to develop new hybrid simulation tests and algorithms

**nees@berkeley HYBRID SIMULATION WORKSHOP**

**DATE:** April 26-27, 2007  
**PLACE:** nees@berkeley Equipment Site  
UC Berkeley Richmond Field Station  
Building 180 Classroom  
1301 South 46th Street  
Richmond, California 94804  
**COST:** A $50 workshop fee will cover the costs of local transportation and workshop meals.

For more information and to register, browse to http://nees.berkeley.edu/workshop

Register for the nees@berkeley HYBRID SIMULATION WORKSHOP at http://nees.berkeley.edu/workshop

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HYBRID SIMULATION WORKSHOP
WORKSHOP AGENDA

Day 1 – Thursday, April 26, 2006
8:30-9:00 Breakfast at nees@berkeley

Hybrid Simulation Basics
9:00-9:10 Welcome (Stojadinovic)
9:10-10:30 Introduction. Modeling and similitude; Sub-structuring (Stojadinovic)
10:30-10:45 Coffee break
10:45-12:30 Integration methods; Simulation errors (Stojadinovic)
12:30-1:15 Lunch

Hybrid Simulation Implementation at nees@berkeley
1:15-2:45 OpenSees structural modeling and simulation
2:45-3:30 Implementation framework; OpenFresco (Schellenberg)
3:30-3:45 Coffee break
3:45-4:30 Hybrid simulation on MTS hardware (Jiran and Schellenberg)
4:30-5:15 OpenSees Navigator: Tool for hybrid simulation (Yang)
5:15-5:30 Review and wrap-up of Day 1 (Stojadinovic)
5:30-6:30 nees@berkeley Lab tour (Stojadinovic)
7:00-8:30 Workshop dinner hosted by MTS

Day 2 – Friday, April 27, 2006
8:30-9:00 Breakfast at nees@berkeley

Hybrid Simulation: Hands-On Part 1
9:00-9:45 Zipper frame example (Yang)
9:45-10:15 Develop your own example (3-4 person workgroups)
10:15-10:30 Coffee break
10:30-11:30 First demo: MTS FlexTest (Jiran, Schellenberg, Takhirov)
11:30-12:30 OpenSees structural modeling and simulation (Mazzoni)
12:30-1:15 Working Lunch
1:15-2:15 OpenSees Solution Algorithms (McKenna)

Hybrid Simulation: Hands-On Part 2
2:15-2:45 Network, telepresence and data storage at nees@berkeley (Patterson)
2:45-3:15 Video and still imaging at nees@berkeley (Takhirov)
3:15-3:30 Coffee break
3:30-4:15 Second demo: Hybrid Simulation. (Yang, Schellenberg, Takhirov)
4:15-4:30 NEES-R proposals: past experience and new proposals (Stojadinovic)
4:30-4:45 Workshop review (Stojadinovic)
4:45-5:00 Attendee feedback

WORKSHOP INSTRUCTORS

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HOTEL & TRANSPORTATION

• UCB rates have been negotiated with the Durant Hotel: 510-845-8981; http://www.hoteldurant.com/
• UC Berkeley will provide daily transportation between the Durant and Richmond Field Station
• Browse to http://nees.berkeley.edu/workshop for a list of other recommended hotels, and driving directions to Richmond Field Station.

SPONSORS
nees@berkeley MTS Systems Corporation

CONTACT INFORMATION

For additional registration information and administrative matters, contact Nancy Nelson at 510-665-3617; nancyn@berkeley.edu
For additional course content or any technical (engineering) matters, contact Bozidar Stojadinovic at 510-643-7035; boza@ce.berkeley.edu

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