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NCREE

Future R&D Plan of NCREE

Shyh-Jiann Hwang

Director General, National Center for Research on Earthquake Engineering

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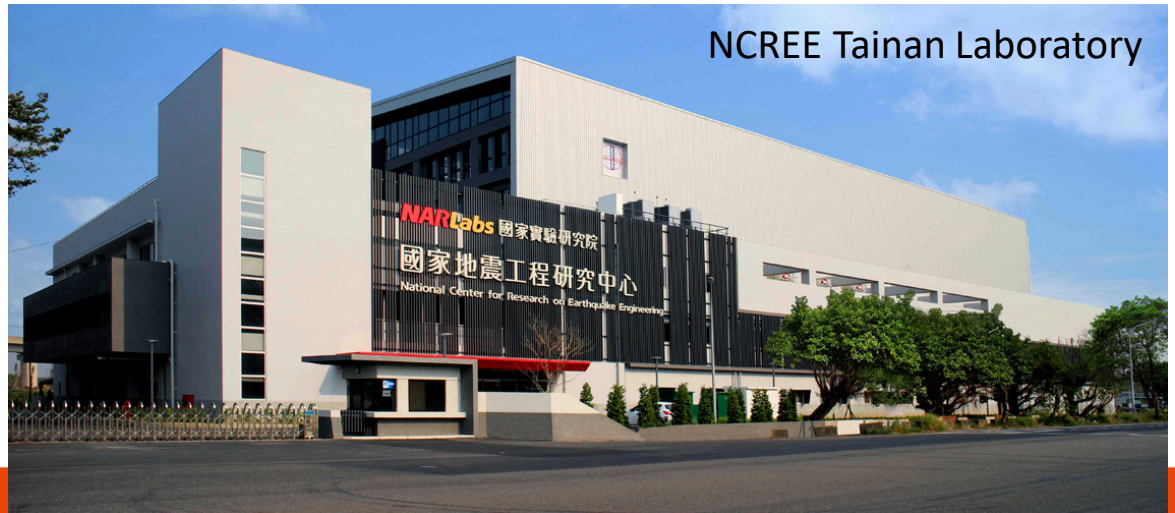
Three Major R&D Axes in the Future

- Structural Safety under Near-Fault and/or Multiple Hazards Threat, and Disaster Mitigation Strategies for Enhancing Resilience
- Innovative Experimental Technologies and Numerical Simulation Methods
- Lessons Learned from Disastrous Earthquakes

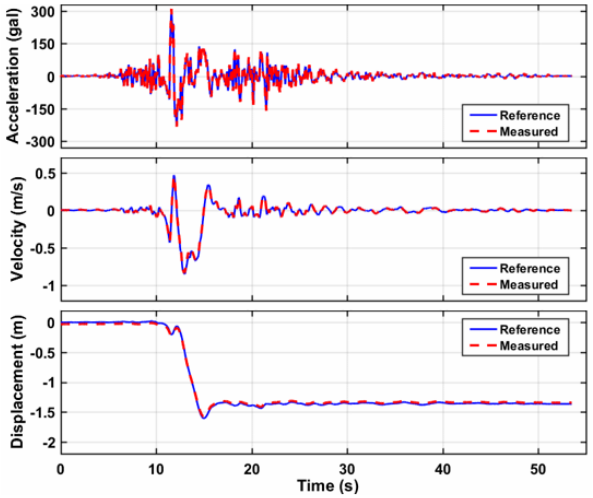


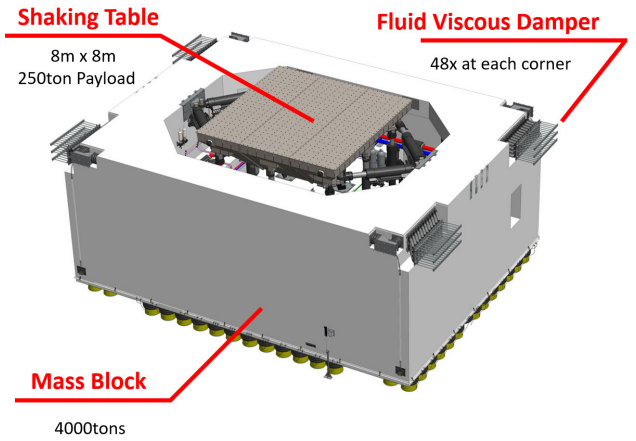
NCREE Tainan Laboratory

Structural Safety under Near-Fault and/or Multiple Hazards Threat

- Near-fault Characteristics
  - collection, advanced analysis, and simulation methods of ground motion records.
- Near-fault Impacts
  - To develop reliable and efficient evaluation methods taking advantage of high-performance shaking table tests.
- Multiple Hazards
  - Enhancing resilience when encountering multiple hazards, especially related to earthquake events, by improvement of design guideline for new structures and retrofit strategies for existing structures.

TCU052, 1999 Chi-Chi Earthquake





Innovative Experimental Technologies and Numerical Simulation Methods

- Seismic Response Evaluation of Nonstructural Components in High-rise Buildings
  - Reproduction of long-period responses on high floors through modern control application using a transfer system.
  - Seismic resistance of nonstructural components subjected to large story deformation through real-time hybrid simulation.
- Hybrid Simulation and Real-time Hybrid Simulation
  - Network-based hybrid simulation on base-isolated buildings using MATS and BATS with online model updating.
  - Real-time hybrid simulation of a residential building retrofitted by VE dampers.
  - Small-scale structural laboratory for technical development and validation.
- Advanced Non-contact Measurement Methods for Seismic Structural Testing
  - Optical and image-based measurement methods.
  - Online data analyzing method.

Lessons Learned from Disastrous Earthquakes

- Development of Seismic Assessment Methodologies for Existing Residential Buildings
  - Seismic rapid evaluation and detailed evaluation for residential buildings.
- Development of Seismic Retrofitting Technologies for Existing Buildings
  - Retrofitting technology for mid- to high-rise buildings with soft-weak bottom story.
- Geotechnical Hazard
  - Lifeline engineering - seismic design, seismic evaluation, and quick repairing.
  - Soil-foundation-structure interaction: shaking table test of laminar shear box.
- Lessons learned from earthquakes
  - Establishment of building database after disastrous earthquakes.
  - Intilligent city with multi-hazard resilience.


2016-02-06 Meinong Earthquake


2018-02-06 Hualien Earthquake