

PEER Report 2021/11 – 2 page summary

Title: PEER Annual Report 2020–2021

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Summary of the Report

The Pacific Earthquake Engineering Research Center (PEER) is a multi-institutional research and education center with headquarters at the University of California, Berkeley. PEER's mission is to (1) develop, validate, and disseminate performance-based engineering (PBE) technologies for buildings and infrastructure networks subjected to earthquakes and other natural hazards, with the goal of achieving community resilience; and (2) equip the earthquake engineering and other extreme-event communities with new tools. This report presents the activities of the Center over the period of July 1, 2020 to June 30, 2021. PEER staff, in particular Grace Kang, Erika Donald, Claire Johnson, Christina Bodnar-Anderson, Arpit Nema and Zulema Lara, helped in preparation of this report.

Despite the remote work during the pandemic, the Center was active on many fronts, such as Research activities (Major projects, Requests-for-Proposals, Research Committee), Educational or Technology Transfer activities (PEER Annual Meetings, Workshops), Outreach activities (Business-Industry-Partnership, PEER reports, Email reach of 2000+ people, Prediction contests), Organizational activities (Core members, Strategic plan, Bylaws, Event calendar), and New initiatives. Key activities of the past academic year include the following:

1. Requests for Proposal: PEER issued a Request for Proposal (RFP) in the Fall of 2020 for the Transportation Systems Research Program (TSRP) and received 34 proposals. Based on three independent reviews of each project, 12 projects were funded comprising a total funding of \$600,000. Since the resumption of the RFP process in Fall of 2017, TSRP funds have supported 54 projects by researchers from all 11 core institutions of PEER, spanning a wide range of thrust areas such as geo-hazards, computation, modeling, experimental work, and network vulnerability.
2. PEER–Bridge Program: In 2020, Caltrans awarded a \$4.5 million, 36-month contract to PEER for the new PEER–Bridge Program. This streamlined framework of Caltrans research program has a single master contract and funds several new contracts each year, with a duration of 2 to 3 years for each new project. Problem statements are chosen from seven priority topics and selection is through a PEER-administered request-for-proposal (RFP) process.
3. Researchers' Workshop: This forum for in-progress reporting of PEER-funded projects, was conducted online in August 2020. With 30 presentations spread over 2 days and ample time for discussion, this workshop identified interaction between several projects and participating researchers provided constructive feedback to on-going work.
4. PEER-DOE Workshop: In May 2021, PEER along with Department of Energy, sponsored a workshop organized by the University of Nevada, Reno, on large-scale shake table testing for

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seismic safety of DOE facilities. This online two-day event featured over 90 invited attendees including DOE, industry and academics.

5. Pacific Rim International Forum: In June 2021, PEER sponsored the Pacific Rim International Forum organized by the University of Nevada, Reno, on “Regional-scale Simulations for Earthquake Ground Motions and Infrastructure Response for Performance-Based Earthquake Engineering.” This online international workshop featured nearly 50 speakers over 2 days and was attended by over 250 people.
6. PEER Committees: Three PEER committees took on their charges in early 2020. These are: Research Committee, with the charge of shaping the general research direction of the organization; Industry Advisory Board, to serve as a bridge between research and practice; and, Resource Identification Committee, with the goal of identifying future funding sources for the Center. These committees have been active with several meetings in 2021. In addition, a new committee, PEER Student Committee was formed in May 2021, to facilitate interaction and engagement of students from all core institutions.
7. Review of the Center: The College of Engineering (CoE) at UC Berkeley initiated a review of PEER Center in November 2020. The review was intended to evaluate the current successes, assess future challenges and explore the long-term needs of the Center, with the benefit of external advice. The composition of the committee provided different perspectives: internal (UCB) faculty, Institutional Board members, an industry partner, and an external reviewer in natural hazard engineering community. The committee recommended Director Mosalam for a second term and commended PEER Center for continuing to be an internationally visible organization with widely used tools and products. Further, the committee provided several suggestions and recommendations for the future growth of the Center.

In the upcoming year, PEER plans to continue holding focused workshops, leverage the new committees’ activities, and draw on existing experience on PBE to systematically move towards Resilient Design for Extreme Events (RDEE).

Keywords: Earthquake Engineering, Seismic, PBEE, PEER-Bridge, TSRP, Lifelines