

Session ID: EXP-4

Title

EVOLUTION OF EXPERIMENTAL TECHNIQUES IN EARTHQUAKE ENGINEERING AND
EXPERIMENTAL DATA MANAGEMENT

Convenors

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Description

Experimental testing on materials and structures in the earthquake engineering field has played a crucial role in the development of research for the reduction of risk. The acquisition of the data and new knowledge on the vulnerability of structural systems (building, bridges, power plants), through the calibration of more accurate and reliable models for analysis and capacity assessment, has strengthened the capabilities of the research community to extend computational simulation at regional scales. The contributions from researchers using state-of-the-art experimental infrastructures has made it possible to expand the range of application by integrating new testing and computational simulation tools, equipment and facilities. Furthermore, critical synergies between these infrastructures active on different types of hazards (tsunami, wind, geotechnical, etc.) has opened new frontiers in natural hazards engineering research.

The session aims to explore the new horizons offered by new technologies and synergies already available or future both to increase application areas and/or to optimize current applications. In this context, particular emphasis will be given to current and future applications by using consolidated techniques (pseudostatic and shake table) and advanced techniques (hybrid simulation also in combination to distributed testing) to enhance the range of investigations. Experimental data management will be also considered as key subject of the session; data integration and sharing among infrastructures will be investigated to understand how future resources could be optimized and better focused on topics not yet or not fully investigated, thus avoiding unnecessary duplication of efforts by the experimental community. In addition, a mechanism for collaboration and interaction with the simulation research community is also an important issue for vital contribution to a more accurate analysis of structural performance for reliable urban resilience assessment.

Invited Speakers

O. Bursi ⁴, F. Dacarro ⁵, S. Dike ³, E. Rathje ⁶, S. Dyke ⁷, G. Deierlein ⁸, G. Bitsuamlak ⁹, C.-C. Chou ¹⁰, K. Tabata ¹¹, G. Tsionis ¹²

Affiliations

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