

## SPECIAL SESSION PROPOSAL

**Title: *Recent advances in computational simulation of structures for performance-based design and assessment***

### Description

Performance-based earthquake engineering (PBEE) seeks to improve the resilience and sustainability of the built environment by designing and evaluating structures for a predictable performance under different hazard levels. From a structural performance standpoint, this approach relies on the ability of numerical methods to predict structural response and damage. Hence, it requires accurate yet efficient computational tools capable of simulating the nonlinear response of structural components and systems.

This special session will present recent developments on computational modeling procedures to simulate structural performance in the context of PBEE. Contributions may include but are not limited to new modeling approaches, structural element formulations and material constitutive laws for reinforced concrete, steel and masonry structures, and retrofit techniques. The session is intended to provide a forum to researchers and practicing engineers for discussing opportunities and challenges associated to the application of advanced computational models in real-life structures.

### Conveners

Juan Murcia-Delso, Assistant Professor, Department of Civil and Environmental Engineering, Universitat Politècnica de Catalunya - BarcelonaTech (UPC), Barcelona, Spain. Email: [juan.murcia-delso@upc.edu](mailto:juan.murcia-delso@upc.edu)

Marios Mavros, Lecturer, Department of Civil and Environmental Engineering, University of Cyprus (UCY), Nicosia, Cyprus. Email: [mavros.marios@ucy.ac.cy](mailto:mavros.marios@ucy.ac.cy)

Sedef Kocakaplan, Lecturer, Department of Civil Engineering, Bursa Technical University, Bursa, Turkey. [sedef.kocakaplan@btu.edu.tr](mailto:sedef.kocakaplan@btu.edu.tr)

Dimitrios Lignos, Associate Professor, Head of Resilient Steel Structures Laboratory, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland. Email: [dimitrios.lignos@epfl.ch](mailto:dimitrios.lignos@epfl.ch)