Session ID: SDM-1

Title
RECENT ADVANCES AND DEVELOPMENTS IN ENERGY-BASED SEISMIC DESIGN

Convenors
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Description
The need for an energy-based design methodology for earthquake resistant design of structures was recognized as early as the mid 1950s. A handful of procedures have been developed for using an energy-based approach in seismic design. However, recently several attempts were made to include the energy-based approach in the design and assessment of structural systems with the purpose of giving an explicit and transparent way in which it is feasible to go from the performance objectives to the design values. Although, compared to forces and displacements, energy is apparently a more difficult concept for a designer to rationalize, the conservation of energy is a law of nature as solid and familiar to engineers as equilibrium. Now there is a need to clearly quantify the energy input into a structure for different levels of earthquake ground motion, the distribution of the energy input throughout the structure so as to control the dissipation demand at each level of the structure, and explicit modeling of the energy absorption capacity of structural elements. On this basis, the aim of this session is to develop a comprehensive vision for Energy-Based Seismic Engineering, tackling new challenges for the design and improvement of new and existing structures, together with the application of new smart technologies.

Invited Speakers
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