

**Session ID:** SDM-8

**Title**

THEORY, MEASUREMENT AND MODELLING OF DAMPING FOR SEISMIC RESPONSE ANALYSIS OF LARGE-SCALE STRUCTURES

**Convenors**

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**Description**

In the simulations of the seismic response of large-scale structures, modelling the damping phenomena not already accounted for using material hysteretic models has been a significant challenge for decades, partly due to a lack of data and partly due to a lack of understanding and theory in the mechanisms that contribute to damping, among many other reasons. The challenge is particularly great for structures with energy dissipations contributed by multiple complex mechanisms that are hard to identify, let alone quantify. The mechanisms may include micro-cracking in concrete, frictional slips in connections, and the interactions between structural and non-structural components and between structures and soil foundations. Nevertheless, the developments of damping theories, models and modelling techniques have seen significant growth recently. Major developments have been made, whether for global and local damping models, system, element and material damping models, or viscous and non-viscous damping models. The relationships between damping and the internal states of structural components, such as damage, have also been explored via structural health monitoring. This technical session aims to bring together the researchers in this area to share their research developments and insights and discuss a future research direction. Submissions on all discussions of damping, including theory, measurement, modelling, computation, evaluation, calibration, and application, will be welcome.

**Invited Speakers**

A. Chopra <sup>3</sup>, C. Cruz <sup>4</sup>, D. Bernal <sup>5</sup>, F. Charney <sup>6</sup>, K. Ikago <sup>7</sup>, R. Shen <sup>8</sup>, S. Adhikari <sup>9</sup>, T. Chang <sup>10</sup>

**Affiliations**

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