

**Session ID:** RES-10

**Title**

SEISMIC RESILIENCE OF STRUCTURES IN LOW-INCOME REGIONS

**Convenors**

A. Sextos <sup>1</sup>, K. Beyer <sup>2</sup>, A. Tsiavos <sup>3</sup>

**Description**

Designing earthquake-resilient structures in low-income countries poses significant challenges associated with the quality of materials, financial resources and quality control to ensure compliance to modern seismic code provisions. The same is often the case in suburbs of large cities in the so-called developed world (i.e., middle-to high income regions) as the same limitations apply. The documented damage and casualties due to the devastating 2023 Kahranmaras earthquake have highlighted the necessity for the code-compliant seismic design as well as the financial constraints that hinder the use of the (otherwise highly efficient) seismic isolation devices at a large scale across the community. It is therefore of paramount importance to develop complementary new methods and high TRL systems for low-cost, low-tech, culturally acceptable, design and strengthening solutions that can enhance the seismic resilience of buildings and infrastructure.

Along these lines, the aim of this Technical Session is to present the state-of-the-art and practice in a series of research fields in the context of the developing countries and deprived regions worldwide:

- New generation of seismic codes, seismic hazard, data scarcity and challenges faced.
- Seismic design and assessment of buildings including code compliance.
- Seismic resilience of structures and infrastructures
- Resilience of agents and communities to cope with earthquake-induced shocks and stresses
- Low-cost, low-tech seismic isolation and response modification techniques
- Rapid visual inspection of buildings and frameworks for seismic upgrade of building portfolios at risk
- Post-disaster recovery plans and preparedness
- Cost-efficient strengthening techniques for Reinforced Concrete, Reinforced Masonry, Unreinforced Masonry, Timber and Adobe buildings
- Insurance implications in the developing world

**Invited Speakers**

F. Cortes <sup>4</sup>, V. Silva <sup>5</sup>, A. Stavridis <sup>6</sup>, N. Marasini <sup>7</sup>, H. Gryc <sup>8</sup>, C. Galasso <sup>9</sup>, K. Goda <sup>10</sup>, I. Ngoma <sup>11</sup>, H.-H. Tsang <sup>12</sup>, B. Briseghella <sup>13</sup>

**Affiliations**

<sup>1</sup> University of Bristol, Bristol, United Kingdom, <sup>2</sup> EPFL, Lausanne, Switzerland, <sup>3</sup> ETH, Zurich, Switzerland, <sup>4</sup> World Bank, Washington DC, USA, <sup>5</sup> University of Aveiro, Aveiro, Portugal, <sup>6</sup> State University of New York at Buffalo, Buffalo, USA, <sup>7</sup> National Society for Earthquake Technology, Kathmandu, NEPAL, <sup>8</sup> ARUP International Development, London, United Kingdom, <sup>9</sup> UCL, London, United Kingdom, <sup>10</sup> University of Western Ontario, Ontario, Canada, <sup>11</sup> Malawi Polytechnic, Malawi, Malawi, <sup>12</sup> Swinburne University of Technology, Melbourne, Australia, <sup>13</sup> Fuzhou University, Fuzhou, China