Special Session:

Advancements in OpenSees applications for Earthquake Engineering

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OpenSees (Open System for Earthquake Engineering Simulation) is a widely adopted open-source framework for modeling and analyzing structural and geotechnical systems under seismic actions. Its flexibility, modularity, and ability to capture complex nonlinear behavior make it a powerful tool for both advanced research and engineering applications.

This special session aims to explore recent developments, innovative methodologies, and practical applications of OpenSees in earthquake engineering. By bringing together researchers, developers, and practitioners, the session will provide a platform to discuss state-of-the-art modeling techniques, computational strategies, and case studies demonstrating the effectiveness of OpenSees in addressing key challenges in seismic safety assessment and resilient infrastructure design.

Topics of interest include, but are not limited to:

- Challenges and advancements in numerical modeling
- Development of new material models, elements, and algorithms
- Nonlinear numerical simulations of structures and Soil-Structure Interaction (SSI)
- Computational optimization and high-performance computing in OpenSees
- Applications of OpenSees in seismic risk and vulnerability assessment
- Performance-Based Seismic Design (PBSD) frameworks using OpenSees
- Recent developments, extensions, and graphical user interfaces (GUI)
- Integration of OpenSees with external software and data-driven techniques
- Case studies and real-world applications in structural and geotechnical engineering