Special Session Title:

Structural identification and knowledge transfer for civil engineering applications

Organizers

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Abstract

The special session focuses on innovative strategies for knowledge transfer, and linear and nonlinear system identification in civil Structural Health Monitoring (SHM). We welcome contributions that explore methodologies for processing vibrational and environmental data to improve the assessment, diagnosis, and predictive capabilities of structural models through data-driven, model-driven and hybrid approaches.

Papers will cover topics such as system identification (linear and nonlinear), signal processing, machine learning, knowledge transfer, domain adaptation, population-based SHM, model updating, and analysis of monitoring dataset including static, dynamic and remote data. Emphasis will be given to different level of damage identification: detection, localization, and quantification. Contributions focusing on advanced data sources, such as satellite-based monitoring and remote sensing, for population-based SHM applications are particularly encouraged. The session will also be an opportunity to present the research conducted within the PRIN SAT4SHM project.

The session aims to bring together researchers working at the intersection of computational intelligence, digital modeling, and structural engineering, encouraging discussions on how to enrich SHM frameworks for existing structures

Contents of interest include, but are not limited to, the following topics:

- System identification
- Knowledge transfer
- Application on full scale structures
- Remote sensing
- Data integration and fusion for monitoring
- Machine learning and optimization
- Non Destructive Test