

Workshop

Experimental Vibration Analysis and Identification Techniques

Topics

The workshop explores experimental testing for detecting, identifying, and modeling dynamical systems, providing practical insights into testing strategies for linear and nonlinear structures and the fundamentals of experimental identification.

The content is subdivided into lectures as follows:

1. Intro to signal processing and digital signal processing

Concise description of measurement chain, sensors, digitalization, Fourier Transform

2. Vibration measurements & time-frequency analysis

Commercial acquisition systems, excitation and sensing equipment and strategies, time and frequency analysis, spectrogram

3. Modal identification strategies

Definition of modal characteristics, time and frequency-based modal identification, EMA & OMA, commercial and open-source tools, model updating and monitoring

4. Substructuring & transfer path analysis

Vibration prediction of assembled systems using test-based components, hybrid substructuring, model-mixing techniques, blocked forces and transfer of vibrations

5. Nonlinear identification strategies

Nonlinearity detection and characterization, nonlinear normal modes, time and frequency vibration testing, nonlinear modal analysis, nonlinear continuation, nonlinear substructuring

6. Joint identification strategies

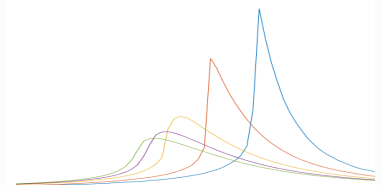
Identification strategies for linear and nonlinear components, bolted joints, rubber mounts, material characterization

7. Advanced measuring techniques

Advanced vibration and monitoring, camera-based vibration analysis and motion magnification

Organizers:

Francesco Trainotti; Tomas Slimak



Participation

Duration: 3 days

Where: online/hybrid/in-person

When: to be arranged

For info, please contact:

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