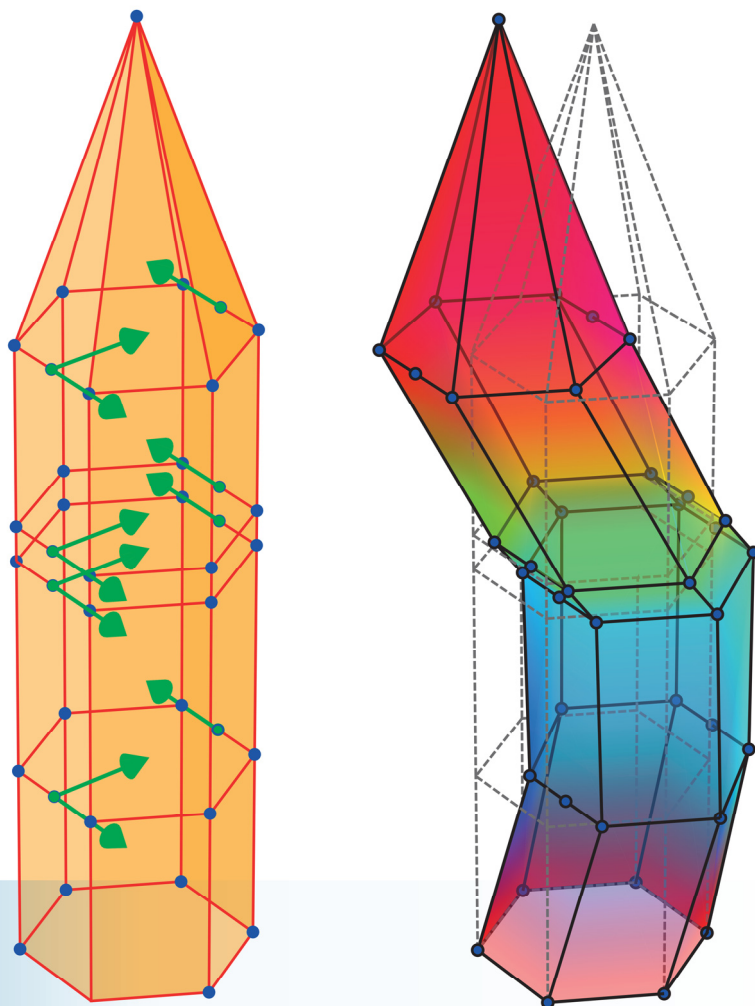
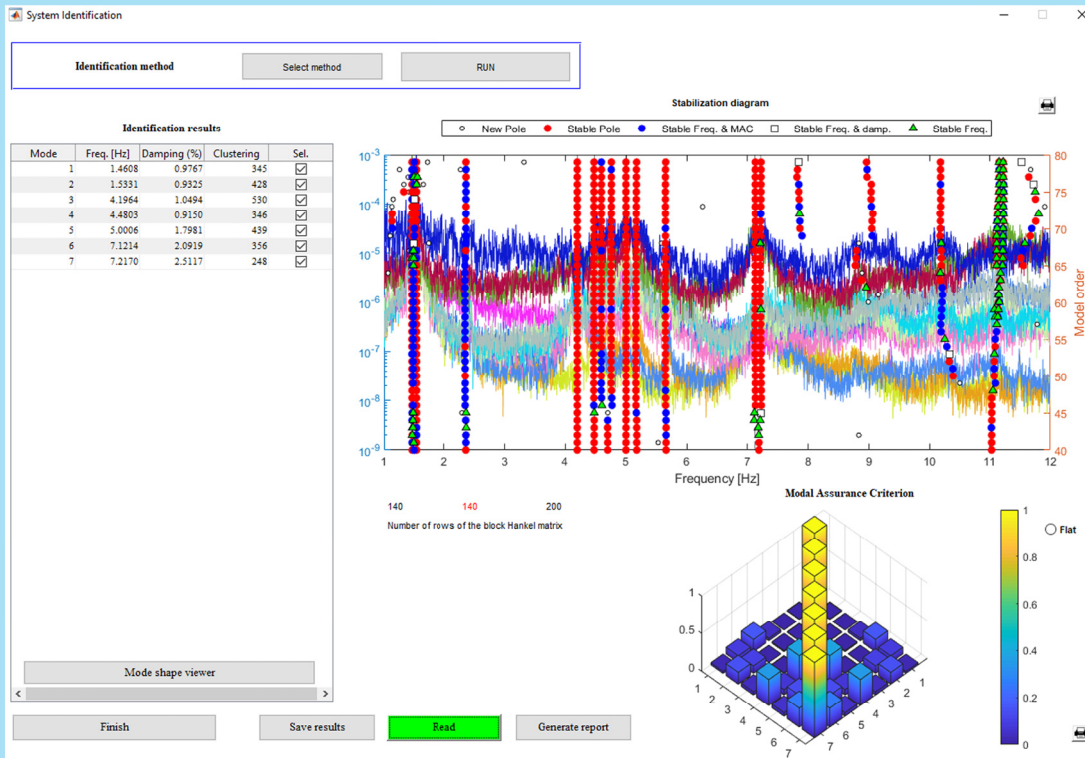


MOVA is a comprehensive software for Operational Modal Analysis of structures, comprising all the aspects of the monitoring since the post-processing of the recordings until the extraction of the modal features. Coded into MATLAB environment, the software includes four different modules: Geometry module; Signal processing; System identification; and Comparison of system identification results.

Up to seven different identification methods are available, including Time and Frequency domain methods. Through an intuitive graphical interface, the software allows the assessment of the complexity of mode shapes, animation, and manifold quality factors that provide a complete tool for Operational Modal Analysis.





AVAILABLE ALGORITHMS

- Enhanced Frequency Domain Decomposition (EFDD).
- Automated and Pick-Picking Frequency Domain Decomposition.
- Polyreference Least-Squares Complex Frequency-Domain method (P-LSCFD)
- Covariance-based Stochastic Subspace Identification (COV-SSI)
- Data-driven Stochastic Subspace Identification (DATA-SSI)
- Blind Source Separation (BSS)
- Eigensystem Realization Algorithm (ERA)

Modal Analysis of a historic building

Operational Modal Analysis of the historic bell-tower of the Basilica of San Pietro in Perugia (Italy). The measurements have been recorded using a 12-channel data acquisition system and sampled at 100 Hz. The data has been analyzed up to 12 Hz, where seven natural modes could be clearly identified.

INTUITIVE GRAPHICAL USER INTERFACE

The graphical user interface allows simple identification of the modal features of structures under ambient vibrations. The geometry module allows different formats, including input text files, as well as the graphical definition of the different elements of the structure.

The signal processing module offers manifold filtering techniques, from simple detrending techniques to advanced denoising techniques based upon Principal Component Analysis. Moreover, different analysis tools such as Fourier analysis, Power Spectrum, Decomposition into Singular Values, or Time-Frequency analysis, aid the user in conducting rigorous processing of the signals through an intuitive graphical interface.

The system identification module offers a great variety of methodologies to carry out the identification of the modal features of the structure. The software includes analysis results in terms of Stabilization diagrams, MAC values, clustering analysis, as well as analysis techniques of the complexity of the mode shapes.

