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Applications of Frequency Domain Curve-fitting in the EFDD Technique

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ABSTRACT

Over the years different methods have been proposed for how to deal with the presence of deterministic signals in operational modal analysis. In this paper a method for detection of deterministic signals using fast Kurtosis checking will be introduced along with a new frequency domain curve-fitting version of the Enhanced Frequency Domain Decomposition (EFDD) technique. This combined approach makes it possible to extract structural modes fast even when several deterministic signals are present and even when the deterministic signals are located exactly at the resonance frequencies of the structural modes. The applicability and quality of the combined approach is assessed for selected cases within mechanical as well as civil engineering.