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System Identification Toward FEM Updating of a Super High-Rise Building

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This paper presents the identification of the modal parameters of the Guangzhou New Television Tower (GNTVT), China, via a data driven stochastic subspace approach, complemented with appropriate strategies for optimal parameters tuning and automatic mode selection via a digital clustering technique. To this end, the acceleration measurements made available within the task I of the ANCRISST benchmark problem [1], are analyzed. Main focus of the work is the analysis of the overall variability of the modal parameter estimates, which is a key point in view of future finite element (FE) model updating and damage detection applications. This task is here addressed by considering several data sets, with similar ambient conditions, that are obtained by subdividing the available acceleration histories into sub-intervals of appropriate lengths. The comparison between the obtained modal parameter estimates and preliminary FE model predictions are finally presented in order to check the need for future FE model updating applications.

Ключевые слова:

Содержание.

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