

## **Structural dynamic investigation of frame structure with bolted joints**

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MATEC Web of Conferences

2017, 90, 1043

Frame structure is widely used in many engineering structures. Besides, vibrational problem is one of the main challenges in industry. Bolted joints are commonly used in industry to connect two or more mechanical parts and it plays a significant role in the dynamics characteristic of the structure. This study aims to perform a model updating procedure on a portal frame structure which consists of bolted joints. Modal parameters such as the natural frequencies, mode shapes and damping ratios are gathered through finite element analysis (FEA) and experimental modal analysis (EMA). Frame structure is set to be fixed-free boundary condition and equivalence of nodes is performed at the area of bolted joints. Correlation between these two sets of data is carried out. With the selected parameters identified to perform model updating on the structure by using sensitivity analysis, the discrepancies in natural frequencies were reduced between FEA and EMA.