

## **[Keynote Speech]: Bridge Damage Detection Using Frequency Response Function**

**Authors :** Ahmed Noor Al-Qayyim

**Abstract :** During the past decades, the bridge structures are considered very important portions of transportation networks, due to the fast urban sprawling. With the failure of bridges that under operating conditions lead to focus on updating the default bridge inspection methodology. The structures health monitoring (SHM) using the vibration response appeared as a promising method to evaluate the condition of structures. The rapid development in the sensors technology and the condition assessment techniques based on the vibration-based damage detection made the SHM an efficient and economical ways to assess the bridges. SHM is set to assess state and expects probable failures of designated bridges. In this paper, a presentation for Frequency Response function method that uses the captured vibration test information of structures to evaluate the structure condition. Furthermore, the main steps of the assessment of bridge using the vibration information are presented. The Frequency Response function method is applied to the experimental data of a full-scale bridge.

**Keywords :** bridge assessment, health monitoring, damage detection, frequency response function (FRF), signal processing, structure identification

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