

Test Research on Damage Initiation and Development of a Concrete Beam Using Acoustic Emission Technology

Authors : Xiang Wang

Abstract : In order to validate the efficiency of recognizing the damage initiation and development of a concrete beam using acoustic emission technology, a concrete beam is built and tested in the laboratory. The acoustic emission signals are analyzed based on both parameter and wave information, which is also compared with the beam deflection measured by displacement sensors. The results indicate that using acoustic emission technology can detect damage initiation and development effectively, especially in the early stage of the damage development, which can not be detected by the common monitoring technology. Furthermore, the positioning of the damage based on the acoustic emission signals can be proved to be reasonable. This job can be an important attempt for the future long-time monitoring of the real concrete structure.

Keywords : acoustic emission technology, concrete beam, parameter analysis, wave analysis, positioning

Conference Title : ICEFM 2019 : International Conference on Environmental Friendly Materials

Conference Location : Paris, France

Conference Dates : June 25-26, 2019