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Structural Health Monitoring by Optical Fibre Distributed Sensing

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Structural damage detection from direct strain measurements can be done only when the sensors are very closely located to the damage initiation point, which is generally impossible to predict. With the availability of high resolution distributed sensing, strains along a continuous line can be obtained, so a crack crossing or growing close to the sensing line will be detected. Transverse cracks growing in a concrete slab loaded in bending were detected and located by a bonded optical fiber, as an example for application in civil structures. As a classical aeronautical structure, an experiment for detecting the fatigue cracks developed at a rivets joint were also done. The high potential of the technique has been demonstrated.

Ключевые слова:

Содержание.

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