

DIVERSITY OF OPTICAL FIBRE SENSORS CREATED FOR STRUCTURAL CONDITION MONITORING

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ABSTRACT

This paper gives an overview of the design, packaging and implementation of a suite of optical fibre sensors designed for structural health monitoring. This includes strain/temperature, vibration, moisture, pH and chloride sensors using fibre Bragg grating (FBG)- or fluorescence-based technique. Their corresponding intensive tests, either by embedding them into or retrofitting onto various types of structures, ranging from concrete, limestone, through carbon/steel to electrical motors, have been undertaken and the results obtained are cross-compared with those obtained from theoretical modelling or from conventional sensors.

KEYWORDS

Optical fibre sensors, fibre Bragg grating, structural condition monitoring, static and dynamic monitoring