

The Applications of FBG sensor for Real-time Strain Mapping of Thin Composite Plate under Point Loading

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ABSTRACT

FBG sensor technology has shown as great potential for structural health monitoring applications in recent decades. The integration of this optical sensor into composite structures accelerates the development of robust smart structures. This paper presents the use of embedded FBG sensor to view the real-time strain mapping of a thin composite under a point loading. The FBG interrogation system implements the match-filter method to convert wavelength variations into strain reading. It was found that, the FBG sensor system was very sensitive for different loading variations and able to update the strain value in real-time. At the end of this research, a prototype of online strain mapping system for thin composite plate, utilizing an embedded FBG sensor, has been built.

KEYWORDS: FBG sensor; smart structures; structural health monitoring.