



Код: 10790

J.C. Vieira, A.C. Vieira, C.M. Fraix, C.M.A. Vasques, R. De Oliveira

A Laboratorial Prototype of a Weight Measuring System Using Fibre Bragg Gratings Embedded in Silicone Rubber

Дрезден, Германия, 2012 год

8 стр; формат: 23,5 x 16 см; библиографический список: 9 единиц

A silicone rubber tray with embedded optical fibre sensors is produced in this work. Two fibre Bragg grating (FBG) sensors are embedded in silicone rubber to enhance their sensitivity. When the rubber tray is subjected to transversal load the wavelength shift of the FBG sensors increases thanks to the coupling with the low stiffness host material. The linear dependence of the Bragg wavelength shift was measured to be 7.64 nm/Pa. A good response of the FBG sensor is observed when embedded in silicone; the sensibility to the applied load was found to be 0.0033 nm/g. This paper reports the first results on the development of a prototype of a weight measuring system using fibre Bragg gratings embedded in a silicone rubber tray.

Доклад. 6-я Европейская конференция по мониторингу технического состояния сооружений, 2012. Редакция Кристиана Боллера.

Ключевые слова:

Содержание

- Abstract
- Introduction
- Materials and methods
- Results and discussion
- Conclusion
- Acknowledgments