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# Fibre optic pressure sensor and monitoring of structural defects

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Keywords

fibre, pressure sensor, microbend, structural defects

Abstract

Pressure induced microbends have been created in a 50 μm graded index multimode optical fibre with spatial periodicity $\Lambda$ = 4.5 mm, embedded in the sample of araldite. If high pressure is applied directly to optical fibre having microbends, it may break, and if pressure is applied to embedded fibre in a solid structure without microbends, the sensitivity is lower. In this paper, a combination of the embedded sensor and microbend sensor is presented. It has the advantage of sensing high pressure on a structure with the sensitivity of a microbend sensor without breaking the optical fibre. It measures pressure up to 1.6 MPa with reproducibility within ± 5% of the measurand. The average sensitivity of the sensor is 5.3/ MPa on an arbitrary scale.

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