
Bending sensitivity dependent on the phase shift imprinted in long-period fibre gratings

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Abstract. This work shows the changes of bending curvature sensitivity when the same long-period fibre grating has different phase shifts. From the knowledge that the coupling constant is reduced as curvature increases, we theoretically and experimentally assess the possibility that the bend sensitivity follows the grating spectrum evolution during the point-to-point fabrication technique. We also show that control of bend sensitivity can be applied to the simultaneous measurement of bend and temperature.

Keywords: long-period gratings, fibre optic sensor, bend sensor, temperature sensor, phase shift

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