

Refractometric sensor based on a phase-shifted long-period fiber grating

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Abstract

A refractometric sensor based on a phase-shifted long-period fiber grating written by electric-arc discharges is presented. Transmission and reflective configurations for refractive index measurements are studied. It is observed that the reflective topology permits better performance compared with the transmission one, which is the approach normally utilized in the context of long-period fiber sensing. The resolution achieved in the measurement of refractive index enables the application of this sensing head structure in demanding situations, such as the measurement of the level of salinity of water.