

ARTICULO ACEPTADO

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Paper: Methane sensing at 1300-nm band with a hollow core photonic bandgap fiber as gas cell

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Abstracts:

In this paper, the feasibility of employing a hollow-core photonic bandgap fiber (HC-PBF) to measure methane concentrations below its Lower Explosive Limit (LEL) is assessed. Using a 5.6-m-long HC-PBF as gas cell, the spectrum of methane at $2+2\ 3$ band at 1300 nm has been recorded and the Q-branch at 1331.55 nm selected for sensing purposes. A minimum detectivity of 49 ppmvm for the system configuration is estimated.