Fiber Optic Methane Concentration Sensor

This paper presents a methane gas monitoring fiber sensor with MOF doped UV-curable polymer base and inscribed IFPI optical structure. It successfully measured the response to different concentrations ...

A multimode fiber methane sensor with polymer-metal organic framework coated cladding is presented. By altering the polymer refractive index through MOF induced methane absorption in various ...

Abstract Methane, as the second most significant greenhouse gas globally, necessitates highly sensitive and rapid detection technologies for environmental protection. To take full advantage of lab-on-fiber ...

This sensor measures methane concentration while providing self-calibration. The photonic crystal fiber features a D-type structure with grooves, where composite two-dimensional ...

The factors affecting the sensitivity of the methane sensor are analyzed. Methane sensors with various parameters are fabricated and tested on a methane sensor platform for ...

We propose a multiplexed fiber-optic methane sensor system to monitor the concentration of methane, which is realized by setting auxiliary weak fiber Bragg grat

In order to develop an accurate monitoring method for methane gas concentration at different locations in a mine environment, a non-source optical fiber sensor for multi-point methane detection has been ...

Abstract Methane, a highly flammable and explosive gas, poses significant safety risks and challenges for industrial applications. A highly sensitive sensor based on surface plasmon resonance within a ...

A methane sensor based on photonic crystal fiber Mach-Zehnder interference is proposed. The sensor is a reflective sensor made by coating a section of photonic crystal fiber cladding with ...

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