Budowa Silesia Photonics

Fiber Optic Palladium-Silver Hydrogen Sensor

Overview

This paper describes the application of a palladium (Pd)-coated tapered optical fiber in order to develop a hydrogen (H 2) sensor. Hydrogen sensors are devices that detect the hydrogen concentration in the environment and are capable of outputting an electrical signal proportional to the magnitude of the hydrogen concentration. A transducing channel was fabricated with multimode optical fiber (MMF) with cladding and core diameters of 125 µm and 62. 5 µm, respectively, in order to enhance the. We investigate surface plasmon polaritons (SPPs) modes in palladium (Pd)-coated silver double nanowires by using the finite difference time domain (FDTD) method. Since Pd can absorb hydrogen (H (_2)) and converts to Pd-H, its permittivity is completely different from that of Pd-H, so the optical.

Article Content

Highly Sensitive Hydrogen Sensor Based on Palladium-Coated

This paper describes the application of a palladium (Pd)-coated tapered optical fiber in order to develop a hydrogen (H2) sensor.

Room temperature operated hydrogen sensor using palladium coated ...

In this work, an optical fiber coated with palladium was developed for hydrogen gas detection. The main characterization techniques used in this work are field emission scanning ...

A Review of Palladium-Based Fiber-Optic Sensors for Molecular Hydrogen ...

This review focuses on the various types of optical fiber hydrogen sensors, containing specifically palladium as active element.

Optimization and Analysis of a Palladium-Coated Tapered Optical Fiber ...

This study presents a hydrogen sensor design and simulation using optical fiber and COMSOL Multiphysics. The sensor consists of a palladium-coated tapered optical fiber that transforms upon ...

Hydrogen Sensors Based on Pd-Based Materials: A Review

Fiber optic hydrogen sensors are hydrogen sensors prepared on the basis of various optical properties, with unique safety and anti-interference capabilities, and are expected to be the primary choice for ...

Palladium (Pd) coated fiber optic hydrogen sensors: A review

In this review, the authors explore recent advancements in palladium (Pd)-based fiber optic sensors for hydrogen (H_2) detection, delving into key aspects of their operational mechanisms ...

Hydrogen Sensing Application of Palladium-Coated Silver ...

The structure we designed can be applied to the direction of the hydrogen sensor to realize the monitoring of its state when using hydrogen energy to ensure safety.

Fiber optic hydrogen gas sensor utilizing surface plasmon resonance ...

In summary, the fabrication and characterization of an optical fiber based surface plasmon resonance hydrogen gas sensor have been carried out. The fabricated probe consists of ...

A Review of Palladium-Based Fiber-Optic Sensors for ...

This review focuses on the various types of optical fiber hydrogen sensors, containing specifically palladium as active element.

Optical fiber hydrogen sensor using metasurfaces composed of ...

It is demonstrated that this integrated system architecture with an optimized palladium-based metasurface and a simple optical fiber readout system provides a compact and light platform for ...

A Review of Palladium-Based Fiber-Optic Sensors for Molecular Hydrogen ...

Abstract: Palladium-based fiber-optic sensors have been one of the most promising configurations for hydrogen sensing.

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