Experimental Fabrication of Fiber Optic Sensors

Overview

We demonstrate the fabrication of fiber-optic Fabry-Perot interferometer (FPI) temperature sensors by bonding a small silicon diaphragm to the tip of an optical fiber using low melting point glass powders heated by a 980 nm laser on an aerogel substrate. Fiber-optic sensors based on fiber Bragg grating (FBG) is desirable for structural health monitoring and is used for various aerospace applications such as measuring strain and temperature, where a single optical fiber can multiplex hundreds of FBG sensors. The National Aeronautics and Space. Fiber-optic sensing (FOS) technology has emerged as a cutting-edge research focus in the sensor field due to its miniaturized structure, high sensitivity, and remarkable electromagnetic interference immunity. To enhance the sensor's sensitivity and stability, we. The invention discloses an apparatus (100) to fabricate U-bent fiber optic sensors, transducers and waveguides, using laser assisted technologies as heat source. The heating laser is delivered to the.

Article Content

Experimental Study of Fiber-Optic Temperature Sensor Based

To improve the sensitivity measurement of temperature sensors, a fiber optic temperature sensor structure based on the harmonic Vernier effect with two parallel fiber Sagnac ...

Research on the Fabrication and Parameters of a ...

We designed a flexible fiber optic pressure sensor for contact force detection based on the principle of backward Rayleigh scattering using a single ...

A rigorous theoretical model of fluorescence-based fiber optic sensors ...

We develop a comprehensive theoretical model for fluorescence-based fiber optic sensors that accounts for multimodal excitation, incoherent emission from a homogeneously ...

One-step fabrication of fiber optic SERS sensors via spark ablation

In the present study, the single-step fabrication of fiber-optic SERS sensors was demonstrated by depositing spark ablation-produced Ag NPs onto the tip of an optical fiber.

Fabrication of Fiber Optic Based Temperature Sensor

In our report, we have developed a simple method of measuring temperature based on fiber optic clad modification technology from the intensity change due to the change in thermo-optic ...

Fiber-Optic Pressure Sensors: Recent Advances in Sensing ...

This review holds important academic and practical value. From a scholarly perspective, it systematically addresses the entire technical chain of optical fiber pressure sensors, covering fundamental physical ...

Design, Fabrication, Testing and Validation of a Ruggedized ...

Interest in adapting fiber-optic sensors for aerospace applications has led to commissioning the development of a ruggedized FOSS system for spaceflight through the NASA Launch Services ...

Apparatus to fabricate fiber optic sensor probes and method of ...

The disclosure relates generally to fiber optic sensors and in particular, to an apparatus to fabricate U-bent fiber optic optic sensor probes in an automated manner.

Controlled Fabrication of Polymer End-Capped Fiber Optic Sensors

Controlled Fabrication of Polymer End-Capped Fiber Optic Sensors Abstract: We demonstrate a simple method for fabricating polymer end-capped fiber optic sensors with highly ...

Fabrication of silicon-tipped fiber-optic temperature sensors using ...

We demonstrate the fabrication of fiber-optic Fabry-Perot interferometer (FPI) temperature sensors by bonding a small silicon diaphragm to the tip of an optical fiber using low melting point glass powders ...

Research on the Fabrication and Parameters of a Flexible Fiber Optic ...

We designed a flexible fiber optic pressure sensor for contact force detection based on the principle of backward Rayleigh scattering using a single-mode optical fiber as the sensing ...

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