Fiber Optic Sensor with Bending Structure

With its compact structure and high sensitivity, the optical fiber sensor holds great potential for applications in structural health monitoring, interventional medicine, and other fields.

The bend loss principle and influencing factors of the fiber are analyzed, and the bending resistances of different fibers are discussed on the basis of theoretical and experimental comparisons.

The sensor is fabricated by splicing multimode fiber (MMF) to HAF, creating a hybrid structure capable of vectorial bending through its unique air-hole and multicore-assisted architecture.

Clearly, TFCF is superior to the conventional tapered fiber coupler when serving as fiber bending sensors. In this work, the excitation of the asymmetric supermodes in the TFCF was ...

Abstract and Figures We develop and investigate fiber-optic bend sensor, which is formed by a section of double cladding SM630 fiber between ...

In the paper, an optical fiber sensor based on a seven-core fiber composite structure is presented, which enables dual-parameter sensing of bending and temperature.

We propose and demonstrate a compact and simple vector bending sensor capable of distinguishing any direction and amplitude with high accuracy. The sensor consists of a short segment of ...

We develop and investigate fiber-optic bend sensor, which is formed by a section of double cladding SM630 fiber between standard SMF-28 fibers. The principle of operation of the sensor is based on ...

It is meaningful to develop a high-performance optic bending sensor characterized by effective direction judgment, compact length, and high sensitivity. In this Letter, a compact ...

This paper proposes a novel fibre optic magnetic field sensor based on core-offset bending structure cascaded with Fiber Bragg Grating (FBG).

A fiber cladding surface plasmon resonance (SPR) bending sensor is realized by the cladding of the fiber structure. By employing coating film, the sensing zone is protected and the toughness of the ...

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