Function of Magnetic Ring Fiber Optic Sensor

Overview

In this paper, based on a ring-shaped structure, an intensity demodulation fiber-optic sensor is explored and experimental verified. The Higher Educational Key Laboratory for Flexible Manufacturing Equipment Integration of Fujian Province, Xiamen Institute of Technology, Xiamen 361021, China The State Key Laboratory for Mechanical Manufacturing Systems Engineering, Xi'an Jiaotong University, Xi'an 710054, China Shandong. Here we propose a high-resolution fiber ring magnetometer based on laser frequency stabilization technology. By connecting one output port to an input port of a fiber coupler with a splitting ratio of 1:99, the fiber ring resonator (FRR) generates a series of highly narrow transmission resonances. Several scalar and vector magnetometers have been proposed in the recent past by exploiting the coating of magneto-optical materials like yttrium iron garnet, silk fibroin hydrogel, Fe 3 O 4 /NiFe 2 O 4 plasmons, magnetostrictive materials like Trefenol-D, etc.

Article Content

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The applications of optical fiber magnetic field sensors as current sensors, geomagnetic monitoring, and quasi-distributed magnetic sensors are presented. In addition, challenges and future

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Highly-sensitive magnetic field sensor based on fiber ring laser

Citations (25) References (20) Abstract A highly sensitive magnetic field sensor based on a fiber ring laser has been proposed and experimentally demonstrated.

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Abstract A highly sensitive fiber magnetic field sensor with directional identification utilizing multi-longitudinal-mode fiber ring laser (FRL) based on polarization-mode beat frequency (PMBF) is

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Magnetic field sensing has important application value in multiple fields. In recent years, new application requirements for magnetic field sensing technology have been proposed, such as high accuracy,

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FIBER OPTIC MAGNETIC SENSORS

This chapter discusses the theory and operation of fiber optic magnetic sensors, including magnetostriction-based interferometric sensors, Faraday effect sensors, and Lorentz force sensors.

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Optical Fiber Magnetic Field Sensors Based on Magnetic Fluid: A

Furthermore, magnetic fluid (MF) is a new type of functional material which possesses outstanding properties, including Faraday effect, birefringence, tunable refractive index and field

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Fiber optic magnetic field sensor based on a magnetic

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We present here the recent advance in exploring new detection mechanisms, materials, processes, and applications of fiber optic sensors. Keywords: fiber optic sensors, detection mechanisms, materials,

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Fibre optic magnetic field sensor based on core-offset bending ...

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

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