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Experimental Errors in Dual-Fiber Interferometric Sensing





Experimental Errors in Dual-Fiber Interferometric Sensing



Polarization non-reciprocity error suppression in dual

In this study, we propose a novel dual-polarization IFOG configuration based on a four-port circulator, in which the polarization coupling errors and the

Analysis of the Errors Caused by Disturbed Multimode Fibers in the

In this paper, for the displacement measurement interferometer with multi-mode fiber-coupled delivery, we analyze the errors caused by disturbed MMFs and obtain the analytical



LSTM-assisted optical fiber interferometric sensing: breaking the

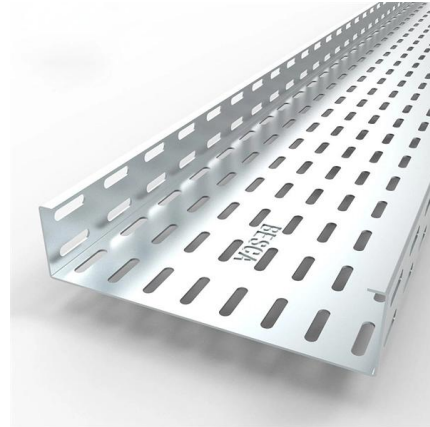
In this work, a long short-term memory neural network is utilized in a Mach-Zehnder interference-based refractive index sensor to break the free spectral range limitation.

Angle error from vibrating in tri-axial interferometric fiber optic

The performance of IFOGs is strongly dependent on fiber coils, which are the main sensing



element in IFOGs . In general, the stress variation of the fiber coil induced from shock and



Simultaneous and Multiplexed Measurement of

Optical fiber sensors that have a compact size and the capability for multi-parameter sensing are desired in various applications. This article reports a

Research on an optical fiber low-coherence interferometric sensing

A novel optical fiber low-coherence interferometric sensing system, which is suitable for absolute remote measurement and is endowed with a dual-interferometer as receiving



Advances in Multicore Fiber Interferometric Sensors

Due to the specificity of fiber structure, i.e., multiple cores integrated into only one fiber cladding, multicore fiber (MCF) interferometric sensors exhibit many desirable characteristics



In-Line Interferometric Temperature Sensor Based on Dual-Core Fiber

In this paper, we proposed an in-fiber Mach-Zehnder temperature sensor based on a dual-core fiber (DCF) in which one core, working as the sensing arm, is suspended in an embedded fluidic channel



Simultaneous measurement of current and temperature by using an all

Abstract A single-mode single fiber Mach-Zehnder interferometer is fabricated and employed for simultaneous measurement of temperature and direct current flowing through the

Sensitivity enhancement of interferometric fiber-optic accelerometers

Among fiber Bragg grating, distributed acoustic sensing, and other fiber-optic accelerometers, interferometric fiber-optic accelerometers (IFOAs) show the highest sensitivity and



Positioning Error Limits and Noise Analysis in Hybrid MZ-Sagnac

In this paper, the factors influencing positioning error is analyzed, and a comprehensive assessment of the system accuracy is provided. The Cramer-Rao lower bound and correlator performance estimate



In-fiber interferometry sensors for refractive index

In this review, we examine and compare over 400 fiber optic interferometers as well as more than 60 fiber optic refractive sensors based on



Dual-Parameter Sensing With a Single Supermode

In this work, we report advances on our previously reported index-temperature multicore fiber interferometer (Flores-Bravo et al., 2021a). We have

A Dual-Cavity Fabry-Perot Interferometric Fiber-Optic Sensor for the

A fiber optic dual-cavity Fabry-Perot interferometer (DFPI) for simultaneous high-temperature and high-gas-pressure measurements is proposed and experimentally demonstrated.





Error Analysis of Heterodyne Interferometry Based on One Single

In this respect, this paper innovatively constructs a heterodyne interferometry error model based on one single-mode PMF, and uses the Jones matrix to analyze the various factors that cause

Interferometric Optical Fiber Sensor for Acoustic

This study presents the experimental optimization of an interferometric optical fiber sensor for acoustic emission (AE) detection. The



An Interferometric Dual Microfiber Refractive Index Sensor via

We systematically investigated the refractive index (RI) sensing performance from both theoretical and experimental aspects.

A Polarization-Space Michelson Interferometric Fiber-Optic Vibration Sensor

A polarization-space Michelson interferometric fiber-optic vibration sensor is proposed and experimentally demonstrated. A phase-coherent dual-frequency optical pulse with two orthogonal



Enhancing the sensitivity of atom-interferometric inertial sensors

We have experimentally demonstrated that tailored error-robust optical pulses can improve the inertial sensitivity of a state-of-the-art atom interferometric sensor operating within a



Analysis of the Temperature Field Characteristics and

This paper investigates the mechanism of thermal-induced errors in interferometric fiber optic gyroscopes (IFOGs) caused by temperature changes in



In-Fiber Interferometric-Based Sensors: Overview and

In-fiber interferometric-based sensors are a rapidly growing field, as these sensors exhibit many desirable characteristics compared to their regular





Optical fiber dual-parameter sensors based on different kinds of

In this review, the refractive index (RI) and temperature dual-parameter sensors based on optical fiber interferometers have been reviewed. The sensing performance of typical structures has been



Development of a high-flexibility dual-polarization modulation in

Abstract Interferometric fiber optic gyroscopes (IFOGs) require strict eigen-frequency modulation matching, as even minor frequency deviations degrade system stability. In this work, a

A Review of Optical Interferometry for High-Precision

Abstract Optical interferometry has emerged as a cornerstone technology for high-precision length measurement, offering unparalleled accuracy in various scientific

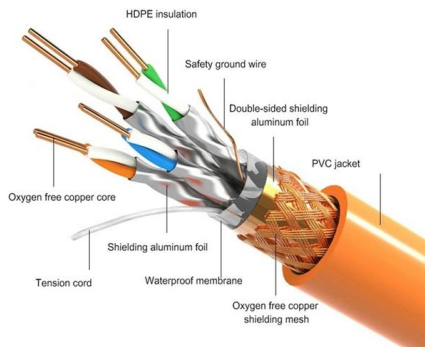


Analysis of the Errors Caused by Disturbed Multimode

In this paper, the errors of the displacement measurement interferometer with multi-mode fiber-coupled delivery are analyzed when the



PRODUCT DETAILS



An Interferometric Dual Microfiber Refractive Index Sensor via

We propose and demonstrate a dual microfiber (DMF) interferometric sensor here. The DMF can be fabricated from standard single-mode optical fibers by using a two-step process. First,



Optical fiber dual-parameter sensors based on different kinds of

Temperature and refractive index are two important parameters for many fields, where their accurate measurement is crucial. This review discusses the development of refractive index and temperature



Experimental study and analysis of high sensitivity interferometric

IFOG of high sensitivity usually requires a fiber length of more than 1 km, which means the volume and cost of IFOG will increase and large Shupe errors will be induced by temperature





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