

Preview

A high speed quasi-distributed demodulation method based on the microwave photonics and the chromatic dispersion effect is designed and implemented for weak fiber Bragg gratings (FBGs). A novel approach to fibre Bragg grating spectra processing is proposed. By changing the step size of each calculation. This paper introduces a computationally efficient Logarithmic Gaussian Levenberg-Marquardt (LGLM) algorithm for FBG demodulation, which significantly enhances system stability and improves range deviation by more than 11. (C) 2025 The Author. Our technique exploits the reflection characteristics of fiber Bragg gratings written in polarization-maintaining fibers to create a frequency discriminator, which is able to convert PM/FM signals into intensity-modulated (IM) signals. A simple theoretical analysis is presented to highlight the.

A low-cost high-speed demodulation system based on a fiber grating spectral filter has been developed to support strain and temperature sensing in

To address this need, a low-power tunable laser-based fiber grating demodulator has been developed in this paper, employing a variable step-length laser scanning strategy based on

In particular, developments utilizing specially modified or tailored gratings, intra-grating concepts, multimode gratings, polarization rocking filters, long period gratings, phase shifted devices,

An optimized strain demodulation method based on dynamic double matched fiber Bragg grating (FBG) filtering driven by a piezoelectric transducer (PZT) is proposed and experimentally

The aim of this article is to introduce an innovative algorithm for the calculation of the shift of the maximum reflectivity wavelength of a Fiber Bragg

A demodulation algorithm is vital for a fiber Bragg grating (FBG) sensing system. In this paper, a novel demodulation algorithm based on the variable-step-size method and cross-correlation algorithm is

Dual-grating demodulation has been both effective and simple in most fiber Bragg grating (FBG) sensors because it involves self-demodulation, and in theory, temperature effects are

A novel approach to fibre Bragg grating spectra processing is proposed. The method is based on the use of nonlinear filtration and raising the spectrum value to the second power.

This paper introduces a computationally efficient Logarithmic Gaussian Levenberg-Marquardt (LGLM) algorithm for FBG demodulation, which significantly enhances system stability and improves range

FP scan method amalgamated non-balance M-Z method is advanced. The GC with FP standard cavity is used in wavelength demarcation technique, and the yawp of photoelectricity detection of

Research and application of FP and MZ fiber Bragg grating demodulation technique

The development direction of fiber Bragg grating demodulation technology is multi-channel synchronous stable high frequency demodulation.

In this article, a tracking-based high-speed demodulation method for FBG sensing systems based on the wavelength-tunable laser is proposed. The wavelength-tunable laser only

A high speed quasi-distributed demodulation method based on the microwave photonics and the chromatic dispersion effect is designed and implemented for weak fiber Bragg gratings (FBGs).

Overall, despite a lot of past effort, there is still a need for a simple and robust FM/PM demodulation scheme that can achieve linear, wideband, and background-free operation. Here, we present a novel

A scheme of fiber Bragg grating (FBG) wavelength demodulation based on reflective semiconductor optical amplifier (R-SOA) is proposed and demonstrated.

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