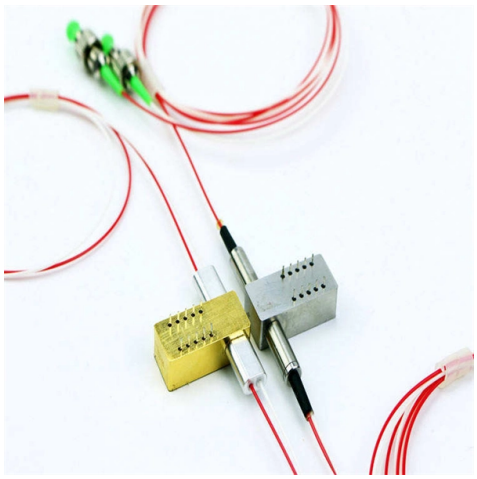
Superstructure Long Period Fiber Grating



Overview

Structure-Modulated Long-Period Fiber Gratings (SM-LPFGs) represent an advancement in fiber optic sensor technology, moving beyond traditional photosensitivity-based fabrication to achieve enhanced performance through the direct physical modification of the geometry of the fiber. This review. This paper presents a review of the evolution of LPFGs, with a specific focus on the progression and current trends of mechanically induced long-period fiber gratings. As a band rejection filter, all light in a spectral slice is discarded without affecting the amplitude and phase of neighbouring wavelengths, with the additional advantage of low insertion losses. An optical fiber sensor based on a second-order superstructure fiber Bragg grating (SFBG) is experimentally investigated.

Article Content

Structure-Modulated Long-Period Fiber Gratings: A Review

Structure-Modulated Long-Period Fiber Gratings (SM-LPFGs) represent an advancement in fiber optic sensor technology, moving beyond traditional photosensitivity-based fabrication to

Superstructure fiber Bragg gratings for simultaneous temperature and ...

The SFBG is a superimposed grating for which a long period fiber grating (LPG) and a fiber Bragg grating (FBG) is written in the same section of a Corning SMF-28 fiber.

Customized femtosecond laser-inscribed superstructure fiber Bragg ...

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This work describes the design of our customized femtosecond laser-inscribed superstructure fiber Bragg grating (SFBG).

Mechanically Induced Long-Period Fiber Gratings and

This paper presents a review of the evolution of LPFGs, with a specific focus on the progression and current trends of mechanically induced

Fabrication long period fiber Bragg grating by using CO

Results explain a quick and easy (pbp) technique of producing uniform grating''s structure using single mode fibres. In the resulting gratings were characterized using optical microscope and

Femtosecond Laser Inscribed Phase-Shifted Superstructure FBG and

Abstract: We demonstrate a phase-shifted superstructure fiber Bragg grating (PSSFBG) fabricated using a femtosecond laser-based point-by-point direct writing technique.

Optical Fiber Sensor Based on Second-Order Superstructure Fiber

An SFBG is composed of a fiber Bragg grating (FBG) and a long-period grating (LPG), so it can be regarded as a periodically modulated FBG. In this study, to the best of our knowledge, a second

Periodical corrugated structure for forming sampled fiber Bragg grating ...

A novel corrugated structure on an optical fiber is proposed and demonstrated to produce tunable long-period index modulation based on photoelastic effect. The corrugated structure is a

Structure-Modulated Long-Period Fiber Gratings: A Review

Structure-Modulated Long-Period Fiber Gratings (SM-LPFGs) represent an advancement in fiber optic sensor technology, moving beyond traditional photosensitivity-based fabrication to achieve enhanced

Optical Fiber Sensor Based on Second-Order Superstructure Fiber

An optical fiber sensor based on a second-order superstructure fiber Bragg grating (SFBG) is experimentally investigated. In general, a first-order SFBG has been available for many years and

(PDF) Long-period refractive index fiber gratings: properties ...

Experimental investigation of the cladding modes excited by long-period gratings, as well as sensitivity of the long-period grating spectrum to external perturbations are discussed.

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Core-modulated long-period fiber gratings formed by heating and ...

Abstract In this paper, we developed and experimentally evaluated a new type of long-period fiber grating. This structure is fabricated by CO2 laser polishing and subsequent heating with

Fabrication and characterisation of ultra-long-period fibre gratings

We report here, for the first time to our knowledge, the fabrication and characterisation of LPFGs with periods up to several millimetres. Potentially, these ultra-long-period gratings may offer

Mechanically Induced Long-Period Fiber Gratings and Applications

Long-period fiber gratings (LPFGs) functioning as band-reject filters have played a pivotal role in the realm of optical communication. Since their initial documentation in 1996, LPFGs have ...

Fiber Bragg grating (FBG)-based sensors: a review of ...

Structural health monitoring (SHM) is essential for ensuring the safety and longevity of civil engineering structures, particularly as many aging infrastructures face increased stress and

Using Finite Element and Eigenmode Expansion Methods to

The second type is long-period fiber grating (LPG), which is also known as transmission-type fiber grating, couples the input core mode (HE 11) to the copropagation cladding mode [5, 6]. To

Long-period fiber grating

A long-period fiber grating couples light from a guided mode into forward propagating cladding modes where it is lost due to absorption and scattering. The coupling from the guided mode to cladding

Effects of strain and temperature change on the spectra of ...

Abstract: For the superstructure fiber grating (SFG) consisting of a fiber Bragg grating (FBG) and a long period fiber grating (LPFG), a similarity transformation method for the coupled

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