BlazingFast Photonics

Period of long-period fiber gratings

Overview

A long-period fiber grating (LPG) is a one dimension (1D) periodic structure, and is formed by introducing periodic modulation of the refractive index along an optical fiber. The coupling from the guided mode to cladding modes is wavelength dependent so we can obtain a spectrally selective loss. It is an optical fiber. In essence, a long period fibre grating (LPFG) is an all-fibre device with wavelength dependent loss. 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. Long period fiber gratings (LPFGs) were fabricated in a standard single mode fiber (SMF-28e) through femtosecond (fs) laser direct writing. Firstly, the techniques of fabricating HLPGs by CO 2 laser, hydrogen–oxygen flame heating, and arc discharge are summarized.

Article Content

Mechanically Induced Long-Period Fiber Gratings and

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

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 long

Long Period Fibre Gratings

2. Fabrication methods of long-period fibre gratings The inscription of long-period gratings on optical fibre basically consists in the generation of a periodical perturbation of the refractive index in the

Arc-Induced Long Period Fiber Gratings

Therefore, due to its pertinence, in this paper we review the main achievements obtained concerning arc-induced long period fiber gratings, with

Review of Helical Long-Period Fiber Gratings

In this paper, comprehensive remarks are given that focus on the main fabrications and wide applications of helical long-period fiber gratings

Long-Period Gratings Based on Photonics Crystal Fibers and Their ...

A long-period fiber grating (LPG) is a one dimension (1D) periodic structure, and is formed by introducing periodic modulation of the refractive index along an optical fiber.

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The Long Period Fiber Grating (LPFG) from AtGrating is an advanced optical component designed to enable selective attenuation of specific wavelengths in the transmission spectrum.

Bragg Gratings

Bragg gratings are reflecting structures with a periodic refractive index modulation. They are contained in dielectric mirrors and in some fiber devices.

Long-Period Fiber Gratings in Active Fibers

1. Introduction Traditionally, long period fiber gratings (LPG) are made in passive optical fibers that have negligible loss. However, loss or gain that can be controlled via optical pumping adds a new degree

Continuous liquid level sensor based on a reflective long period fiber ...

Long-period fiber gratings (LPGs) are widely used as sensors due to their high sensitivity to temperature, strain and refractive index , besides the inherent advantages of fiber sensors.

Long-period fiber grating

It is an optical fiber structure with the properties periodically varying along the fiber, such that the conditions for the interaction of several copropagating modes are satisfied. The period of such a

Simplified hollow-core photonic crystal long period fiber grating for ...

Request PDF | On May 7, 2026, Cailiang Lv and others published Simplified hollow-core photonic crystal long period fiber grating for high-temperature sensing | Find, read and cite all the

High-sensitivity hot-wire anemometer using cobalt-doped fiber-based ...

A high-sensitivity hot-wire anemometer is proposed for use with a cobalt-doped fiber (CDF) based long-period grating (LPG) heated optically by a 1480 nm laser. The CDF-LPG absorbs laser power and

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

Long Period Gratings in New Generation Optical Fibers

2. Long period gratings: a view back Long Period Gratings are a periodic perturbation of the properties of the optical fiber, generally of the refractive index of the core and/or geometry, in a single mode fiber.

(PDF) Optical Fiber Sensors: Working Principle

Fiber-optic sensors based on Bragg gratings, long-period gratings, interferometry, surface plasmon resonance (SPR), fluorescence, and light

Radiation Effects on Long Period Fiber Gratings: A Review

For example, very recently, Morana et al. 5 performed a thorough review about the radiation effects on fiber Bragg gratings (FBG) focused on

Ultra-long-period fiber gratings | IEEE Conference Publication | IEEE ...

We report here for the first time the fabrication and characterisation of long period fiber gratings with periods of several millimetres. The resonant loss peaks of these gratings are generated

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

(PDF) Long-period refractive index fiber gratings:

Experimental investigation of the cladding modes excited by long-period gratings, as well as sensitivity of the long-period grating spectrum to

Fiber Bragg Grating Working Principle, Bragg Wavelength, Strain and ...

Why longer gratings help More grating periods mean more tiny reflections contributing coherently, which increases reflectivity and usually narrows the spectral feature.

Temperature Stability and Spectral Tuning of Long Period Fiber

In this work, the entire fabrication and characterization process of the LPFGs in SMF-28e fibers inscribed by fs-laser direct writing with periods to couple to low and high order cladding modes is

Long Period Fibre Gratings

The inscription of long-period gratings on optical fibre basically consists in the generation of a periodical perturbation of the refractive index in the core, the cladding, or both along the optical fibre

Modelling, fabrication and characterization of long period gratings ...

An optical fiber grating corresponds to a periodic modulation of the refractive index of the fiber material. One type of these gratings are the long period gratings (LPGs), whose period is in the

Fabrication and characterisation of ultra-long-period fibre gratings

We report here for the first time the fabrication and characterisation of long-period fibre gratings (LPFGs) with period size up to several millimetres. The resonant loss peaks of these ultra

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