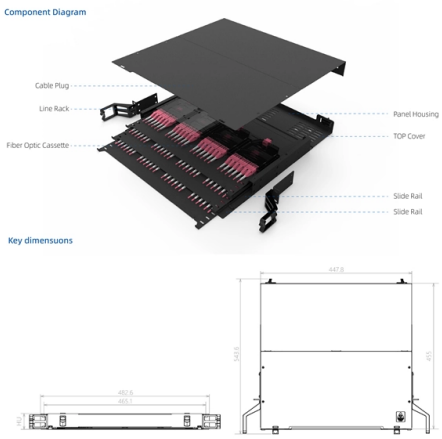
BlazingFast Photonics

Simulation of Triangular Fiber Bragg Grating



Overview

The paper presents the results obtained in simulation of fiber Bragg grating (FBG) and long-period grating (LPG) sensors and their applications. The FBG is constructed with an effective index of 1. 5, and a periodic variation of 1e-3 in the refractive index of the core of a step-index fiber. The refractive index contrast, as well as the pitch and duty. We will study three different geometries, and use FIMMPROP to generate transmission and reflection spectra in each case for different mode orders. The method is an extension of the Coupled Mode Theory and utilizes the equivalent transmission lines in order to. Sol Photonics has bundled years of experience of Fiber Grating design and manufacturing into an easy to use software package which we named GDS (short for Grating Design Software).

Article Content

Fiber Bragg Gratings — Sol Photonics

GDS is intuitively easy to use with just two separate Graphical User Interface (GUI) windows and a limited amount of required settings. The aim of GDS is not only to

Numerical Simulation Methods Applied at Fiber Grating Sensors Design

The paper presents the results obtained in simulation of fiber Bragg grating (FBG) and long-period grating (LPG) sensors and their applications. The optical properties of FBG and LPG are firstly

Design and Simulation of Fiber Bragg Grating by Comsol ...

Increasing the periods of the grating inside the core will confined the modes at the transmission mode in the case of uniform Bragg grating. Keywords:Fiber Bragg Grating, Comsol Multiphysics, 3D

A novel numerical investigation of fiber Bragg gratings with ...

In this paper, numerical solutions for the revered optical fiber Bragg gratings that are considered with a cubic-quintic-septic form of nonlinear medium are constructed first time by using an ...

Design & simulation of fibre Bragg grating sensor for ...

Download Citation | Design & simulation of fibre Bragg grating sensor for temperature and strain measurements | Sensors of optical fibre were developed from the experiential step to

Fiber Bragg Grating Modeling, Characterization and

Grating length and refractive index profile are the critical parameters in contributing to performance of fiber Bragg grating.

(PDF) Design of High Performance Triangular Fiber

This paper presents on the design of high performance triangular Fiber Bragg Grating (FBG) as temperature sensor. This triangular FBG is designed and

Fiber Bragg grating modeling, simulation and characteristics with ...

In this paper we perform a simulation of fiber Bragg grating sensor with different grating lengths. It is shown that the grating length represents as one of the critical parameters in contributing to a high

Design & simulation of fibre Bragg grating sensor for temperature and ...

One basic module of the optical fiber is Fiber Bragg-Grating (FBG), it can be considered as a remarkable candidate as optic fiber sensor.

Fiber Bragg gratings

In this topic, we demonstrate how to simulate fiber Bragg grating (FBGs) using MODE'' eigenmode expansion (EME) solver. Simulation setup...

Transfer matrix method for simulation of the fiber Bragg grating in ...

References (20) Abstract In this study, a new simulation method is proposed and verified for fiber Bragg grating patterned on polarization maintaining fiber (PM-FBG) using the transfer matrix ...

Bragg Grating full device simulation with EME – Ansys

Simulation Setup When simulating periodic structures using EME, only one unit cell of the geometry needs to be defined. In Bragg_EME.lms, the EME solver covers

A Transmission Line Method for the Simulation of Fiber Bragg Gratings

A new method for the analysis and design of fiber Bragg gratings (FBG) based on the theory of transmission lines has been developed and verified both theoretically and experimentally.

Modeling and characterization of fiber Bragg grating for maximum ...

This paper presents the modeling and characterization of an optical fiber grating for maximum reflectivity. Grating length and change in refractive index are the critical parameters in

Design and Simulation of Fiber Bragg Grating by

In this research, new software Comsol Multiphysics v.5.2 was used to study the mode distribution at the ends of step index optical fiber. Single mode Optical

Multimode optical fiber Bragg gratings: modeling, simulation, and ...

Fiber Bragg gratings (FBGs) have emerged as important components and received intensive research attention in both fiber telecommunication and sensing fields. Bragg gratings in

Fiber Bragg Gratings | FIMMPROP | Photon Design

3D simulation of transmission and reflection spectra with FIMMPROP software

Fibre Bragg Gratings

This solution constitutes the most commonly used method for fibre Bragg grating simulation. It was first pre-sented in 1987 and is both simple to implement and gives good results for a wide variety

Simulation and Modeling of Fiber Bragg Grating Sensors

As a latest trend in last decade Fiber Bragg grating (FBG) attracted technical community for optical sensing in varied applications like Internet of

Uniform Fiber Bragg Grating modeling and simulation used matrix ...

Abstract This paper presents the modeling and simulation of an optical fiber Bragg grating for maximum reflectivity, minimum side lobe. Gating length represents as one of the critical parameters in

The modelling of Fiber Bragg Grating

Fig. 1 The representation of Fiber Bragg Diffraction Grating the couple-mode theory (CMT), transfer matrix method and changing-of-index model. In order to design fiber gratings for various applications,

FBG_SiMul V1.0: Fibre Bragg grating signal simulation tool for finite ...

The software uses a modified T-Matrix method to simulate the FBG reflected spectrum based on the stress and strain from a finite element method model. The article describes the theory and algorithm

Modeling and Simulation of Fiber Bragg Grating as

Fiber Bragg Gratings (FBG) serve effectively as temperature sensors and gas sensors. Simulation results highlight the impact of grating length on reflection

FBG_SiMul V1.0: Fibre Bragg grating signal simulation tool for finite ...

FBG_SiMul V1.0 is a tool to study and design the implementation of fibre Bragg grating (FBG) sensors solutions in any arbitrary loaded structure or application. The software removes the

Bragg Grating Simulation Software

This document is a manual for operation of custom-designed simulation software for the prediction of the complex reflection spectrum of fibre Bragg gratings, given user defined input parameters.

Fiber Bragg grating modeling, simulation and

In this paper we perform a simulation of fiber Bragg grating sensor with different grating lengths. It is shown that the grating length represents as one

Fiber Bragg Gratings | FIMMPROP | Photon Design

3D simulation of transmission and reflection spectra with FIMMPROP software. We will show here how FIMMPROP can be used to model fiber Bragg gratings. We

Modelling and Simulation of Fiber Bragg Grating Characterization for ...

Abstract In this paper, modelling, simulation and characterization of optical fibre Bragg grating (FBG) for maximum reflectivity for oil and gas sensing applications are presented. The fibre

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