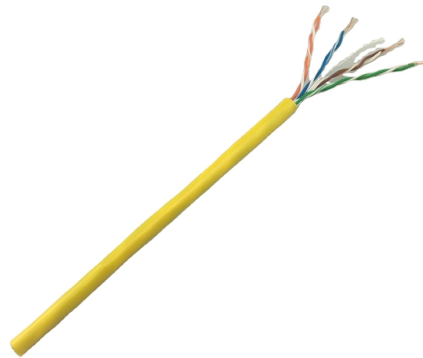


Phase Masking Method for Fiber Gratings



Overview

This involves several steps: coating of substrates with controlled thickness of photoresist, formation of a grating mask by holograph interference exposure and development, and finally transferring etching of this mask into the fused silica substrate to form a permanent phase. This involves several steps: coating of substrates with controlled thickness of photoresist, formation of a grating mask by holograph interference exposure and development, and finally transferring etching of this mask into the fused silica substrate to form a permanent phase. This paper reports an investigation of a fabricated fiber grating device characteristics and its applications, using a phase mask writing technique. The phase mask technique used for writing fiber gratings has the advantages over the traditional holographic method because of its. Sign up for. Improved Phase-Mask Fabrication of Fiber Bragg Gratings An improved method of fabrication of Bragg gratings in optical fibers combines the best features of two prior methods: one that involves the use of a phase mask and one that involves interference between the two coherent laser beams. The principal advantage is the flexibility afforded by the femtosecond laser inscription, where sub-surface structures define the phase mask period and mask properties. With this setup, 2 mm-long gratings with.



Article Content

Fabrication of Tailored Bragg Gratings by the Phase Mask Dithering ...

Abstract: The most relevant aspects related to the phase mask dithering/moving method for the fabrication of complex Bragg grating designs are reviewed. Details for experimental implementation

Phase-Inserted Fiber Gratings and Their Applications to

Phase-inserted fiber gratings (PI-FGs) refer to those gratings where there exist a number of the phase-shifts (spatial spacing) among different

Novel fabrication technique for phase-shifted fiber Bragg gratings ...

Abstract: A new method is proposed and demonstrated for fabricating phase-shifted fiber Bragg gratings (FBGs) using a variable-velocity scanning UV laser beam in combination with a shielded phase mask.

Fabrication of multiple fiber-Bragg gratings on one SMF using a single ...

The fixed pitch of the phase-mask imposes limitations over the achievable Bragg wavelength. The obvious solution consists of changing the pitch of an interferometric pattern over the fiber by

Phase Mask

A phase mask is defined as a relief grating etched in a UV-transmitting silica plate, used in transmission to diffract an incident UV beam into multiple orders, facilitating the inscription of fiber

Optimal phase mask for fiber Bragg grating fabrication

A photolithographic method is described for fabricating refractive index Bragg gratings in photosensitive optical fiber by using a special phase

Phase-Mask Method for Volume Manufacturing of Fiber Phase Gratings

In this paper we introduce a robust new technique which offers a clear pathway to the volume manufacture of these important fiber components.

Optimal phase mask for fiber Bragg grating fabrication

We show by rigorous coupled-wave analysis and experimental measurements the optimal values of phase retardation and duty cycle of the phase mask to minimize zero and even diffracted orders. The

Improved Phase-Mask Fabrication of Fiber Bragg Gratings

An improved method of fabrication of Bragg gratings in optical fibers combines the best features of two prior methods: one that involves the use of a phase mask and one that involves interference between

Improved Phase-Mask Fabrication of Fiber Bragg Gratings

Improved Phase-Mask Fabrication of Fiber Bragg Gratings An improved method of fabrication of Bragg gratings in optical fibers combines the best features of two prior methods: one that involves the use

Fibre Bragg grating writing using phase mask technology

Fibre Bragg gratings (FBGs) are novel components of communication and sensors. The technique commonly employed for production of FBGs involves exposure of photosensitive germanosilicate

Optimal phase mask for fiber Bragg grating fabrication

Under an oblique incidence, we optimize the phase mask with three parameters: phase retardation, duty cycle, and refractive index, which result in a perfect sinusoidal interference field with high diffraction

A fiber grating preparation method: Drawing tower grating by single ...

A method of on-line dynamic preparation of drawing tower grating (DTG) based on the phase mask with a single laser pulse is introduced. The online DTG preparation method provides us

Phase mask for fabrication of fiber Bragg gratings by femtosecond laser

The diffraction characteristics of a phase mask for a 520 nm wavelength Femtosecond laser-written FBG are investigated in this study using rigorous coupled-wave theory (RCWT). The

(PDF) Fabrication of fiber grating by phase mask and

The phase mask technique used for writing fiber gratings has the advantages over the traditional holographic method because of its simpler writing setup and more

Research of fiber Bragg gratings inscription by the method of ...

The paper demonstrates the research of a fiber Bragg gratings inscription method including translation of a laser beam relative to a phase mask. Passing laser radiation through a

Polymer Fiber Bragg Grating Inscription using Phase Mask and 400

This work highlights a setup based on a femtosecond laser system operating at 400 nm and using a phase mask technique to inscribe FBGs in CYTOP fibers without over-clad.

A two-step scanning-mask exposure method for the fabrication of ...

A novel two-step exposure method for the fabrication of apodized fiber Bragg gratings (AFBG's) with arbitrary apodization functions has been proposed in this paper. The method can be

5. Phase-mask technique for fiber Bragg grating

Figure 2.5 illustrates the most widely used phase-mask technique to inscribe a BG in an optical fiber, using a diffractive optical component (a transmission

Fiber Bragg Grating with Enhanced Cladding Modes

In this paper, we demonstrate a fiber Bragg grating (FBG) with a wide range and a comb with continuous cladding mode resonances inscribed in non

Bragg gratings in optical fibers made by the phase mask method

A fiber Bragg grating is a very attractive passive device widely used in telecommunication networks, laser technologies, metrology and research laboratories. The Institute of Electronics

Fabrication of Phase Mask for Optical Fiber Grating

Fabrication of Phase Mask for Optical Fiber Grating Abstract: A fused silica phase mask with the period of 1069nm, and ruled area 50×50mm² has been fabricated

Femtosecond laser inscribed phase masks for fibre Bragg grating

K. O. Hill, B. Malo, F. Bilodeau, D. C. Johnson, and J. Albert, "Bragg gratings fabricated in monomode photosensitive optical fibre by UV exposure through a phase mask", Applied Physics Letters, 62 (10),

Research on phase mask method-based phase-shifted fiber grating ...

In this work, a simple phase-shifted fiber grating (PSFG) inscription technique based on screening method was demonstrated, in which a standard single-mode fiber (SMF) is irradiated by

10 Fiber gratings: principles, fabrication and properties

The phase mask method also lends itself well to chirped and apodized grating production. The major drawback of the phase mask method is that there is very little flexibility of the grating pitch which can

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