

Can gratings be etched after fiber taper



Overview

We have studied, both theoretically and experimentally, fiber Bragg gratings with a number of different chirp profiles. These chirp profiles can easily be achieved by a recently demonstrated technique involving a taper of desired profile etched into the cladding of a. Abstract: A technique for fabricating fibre gratings with an accurately controlled chirp profile is demonstrated. The performances of. Here, we present a novel method to fabricate long period gratings using standard single mode optical fibers (SMF). These optical devices were fabricated in a three-step process, which consisted of etching the SMF, then coating it with a thin-film and, the final step, which involved removing. We propose a seawater salinity sensor array based on a micro/nanofiber Bragg grating structures, which allows for the simultaneous measurement of temperature and salinity.



Article Content

Temperature and Strain Characterization of Tapered Fiber Bragg

This work presents a systematic experimental investigation of tapered fiber Bragg gratings (tFBGs) fabricated from standard SMF-28 fiber with waist diameters ranging from 30 to 115 μm .

Fabrication of Long Period Gratings by Periodically Removing the ...

Here, we present a novel method to fabricate long period gratings using standard single mode optical fibers (SMF). These optical devices were fabricated in a three-step process, which consisted of

Backscattering design for a focusing grating coupler with fully etched ...

Here, we investigate a photonic crystal anti-reflection approach for the design of fully-etched TM grating couplers with high coupling efficiency and low back reflections between the

A compact silicon grating coupler based on hollow

A new compact silicon grating coupler enabling fibre-to-chip light coupling at a minimized taper length is proposed. The proposed coupler, which

Fiber Bragg gratings with various chirp profiles made in etched tapers ...

Consider an uniform grating in an optical fibre of radius " r ", if the fibre is subjected to a tension " F ", both the grating pitch " A " and the effective refractive index " n " change and this causes a change in the

Fabrication of chirped fibre gratings using etched tapers

A technique for fabricating fibre gratings with an accurately controlled chirp profile is demonstrated. The technique involves writing a grating over a section of fibre, the cladding of which has been tapered by

Fiber Bragg gratings with various chirp profiles made in etched tapers

We have studied, both theoretically and experimentally, fiber Bragg gratings with a number of different chirp profiles. These chirp profiles can easily be achieved by a recently demonstrated technique

Chirped Fiber Bragg Gratings Fabricated Using Etched Tapers

Abstract We have demonstrated a technique capable of controllably producing fiber Bragg gratings with any arbitrary chirp profiles. The technique involves making a taper on the outer cladding of a section

Tutorial on Silicon Photonics Integrated Platform Fiber Edge Coupling

Typically, PICs require an effective coupling mechanism to launch light into the waveguide from a fiber. To this end, grating and edge couplers are widely employed [17–43]. Grating couplers are used in

Fabrication of Chirped Fibre Gratings Using Etched Tapers

It involves writing a grating over a section of fibre, the cladding of which has been tapered by etching in HF acid. A strain gradient along the taper is used to produce the chirp either during or after writing.

Chirped Fiber Bragg Gratings Fabricated Using Etched Tapers

The technique involves making a taper on the outer cladding of a section of fiber by differential etching along the length of the fiber. A grating is then written over the taper in the usual

Fabrication of chirped fibre gratings using etched tapers

Chirped fibre Bragg gratings have been fabricated using a novel process in which the outer diameter of the fibre is tapered with a computer-controlled acid etching process.

Theory, experiment, and application of optical fiber etching

Finally, required tapered fiber tips can be made by controlling the etching velocity and the pulling velocity of optical fiber from the etching solution.

Tunable chirp in Bragg gratings written in tapered core fibers

Etched fibers have an uniform core and then a constant propagation coefficient that can be modified along the fiber by applying some mechanical stress, therefore etched fibers allow to

Tapered Fiber

In tapered optical fiber sensing probe, the diameter of tapered optical fiber is usually several microns, and after incident light entering into tapered region, the angle of ray decreases gradually, and

Miniature Engineered Tapered Fiber Tip Devices by Focused

Optical fibers have been the basis of the modern information technology since Kao and Hockham proposed glass waveguides as a practical medium for communication in 1965. A lot of different

Effects of fabrication deviations and fiber misalignments on a fork ...

Abstract We demonstrate a fork-shape edge coupler consisting of a two-tip taper and subwavelength gratings for optical interconnects in optical communication scenarios. The proposed

Improving the performance of chirped fiber grating with cladding being ...

Abstract A new grating structure of cladding being etched as sinusoidal function along the grating length is introduced to improve their performance. When a tension is applied to it, the fiber

Low-Loss Silicon Waveguides and Grating Couplers

The optical mode from the compact silicon waveguide is first expanded laterally along an adiabatically tapered waveguide and then redirected

Shallow-Tapered Chirped Fiber Bragg Grating Sensors

In this work, we present a gold-coated shallow-tapered chirped fiber Bragg grating (stCFBG) for dual refractive index (RI) and temperature sensing.

Bragg grating fabrication on tapered fiber tips based on

Focused ion beam milling is used on chemically etched tapered fiber tips to create fiber Bragg gratings. These fiber Bragg gratings are based on a

Tapered and linearly chirped fiber Bragg gratings with co-directional ...

Abstract A method of spectral width tailoring of tapered fiber Bragg gratings is theoretically analyzed and experimentally verified. This concept is based on inscription grating structures in which

Grating Coupler Design for Low-Cost Fabrication in

Grating couplers are attractive due to their off-plane coupling capability, which increases integration with other photonic devices, such as

Chemically-Etched Optical Fiber Tapers for Adiabatic Fundamental

The adiabatically tapered subwavelength-scale optical fiber tapers (OFTs) have been of interest for many photonic applications. We demonstrate chemical etching-based adiabatic OFTs

Formation of Fiber Tapers by Chemical Etching for

This paper demonstrates a method for preparing cylindrical tapers by the method of safe chemical etching of SMF28 optical fibers for the purpose of

Fiber Bragg Grating Salinity Sensor Array Based on Fiber Tapering

We propose a seawater salinity sensor array based on a micro/nanofiber Bragg grating structures, which allows for the simultaneous measurement of temperature and salinity. The

Chirped fibre Bragg gratings fabricated using etched tapers

A strain gradient develops over the taper when a tension is applied to the fibre and this strain gradient is used to introduce a chirp in the gratings. The chirp can be introduced either during

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