How were fiber Bragg gratings invented

Overview

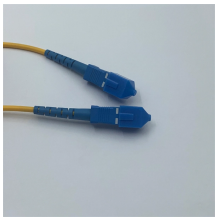
The first in-fiber Bragg grating was demonstrated by Ken Hill in 1978. Initially, the gratings were fabricated using a visible laser propagating along the fiber core. This is achieved by creating a periodic variation in the refractive index of the fiber core, which generates a. The solution came when Charles Kao and George Hockham of the British company Standard Telephones and Cables promoted the idea that the attenuation in the existing optical fibers could be reduced below 20 decibels per kilometer (dB/km), making fibers a practical communication medium. They proposed. A fiber Bragg grating (FBG) is a type of distributed Bragg reflector constructed in a short segment of optical fiber that reflects particular wavelengths of light and transmits all others.

How were fiber Bragg gratings invented

FBGs were originally employed in telecommunication systems as ...

Subsequent research studies have demonstrated that when ultraviolet light (~ 244 nm–248 nm) interference pattern irradiates a photosensitive optical fiber, the refractive index of fiber core changes ...

In 1978, researchers at the Communications Research Centre Canada were the first to observe photo-induced change of refractive index in glass optical fibres and demonstrate writing permanent ...



Originally, the manufacture of the photosensitive optical fiber and the ''writing'' of the fiber Bragg grating were done separately. Today, production lines typically draw the fiber from the preform and ''write'' the ...

Abstract: The first fiber Bragg gratings were accidentally written in a Ge-doped silica fiber using a high power argon-ion laser [Hill 1978].

Fiber Bragg gratings are created by "inscribing" or "writing" systematic (periodic or aperiodic) variation of refractive index into the core of a special type of optical fiber using an intense ultraviolet (UV) source ...

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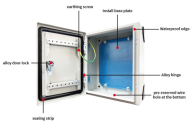
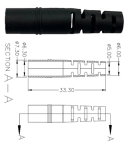


FBGs were originally employed in telecommunication systems as bandpass filters in add/drop and wavelength division multiplexing (WDM) passive systems; when the FBGs are made with a variable ...



Versatility in the fabrication of FBGs has been gained from the fact that the Bragg wavelength is independent of the writing laser used. Subsequent to this initial work the interest in FBGs has ...

Bragg gratings are the key elements in resonators of most modern fiber lasers, acting as selective dielectric mirrors. In the scope of this field, inscription features and decay mechanisms of Bragg ...

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