High-precision arrayed waveguide gratings used in the Finnish subway

Overview

We have developed our first generation of AWG devices using a silica-on-silicon substrate with a very thin layer of Si3N4 in the core of our waveguides. They image the field in an input waveguide onto an array of output waveguides in such a way that the different wavelength signals present in the input waveguide are imaged onto different output waveguides. These devices are capable of multiplexing many wavelengths into a single optical fiber, thereby increasing the transmission capacity of optical networks considerably. It is usually built as part of a planar lightwave circuit (photonic integrated circuit), where the light coming from an input fiber first enters a multimode. A comprehensive design of a folded-architecture arrayed-waveguide-grating (AWG)-device, targeted at applications as integrated photonic spectrographs (IPS) in near-infrared astronomy, is presented. These design of these devices are based on an.

Article Content

PLC-Based Arrayed Waveguide Grating Design for Fiber Bragg Grating ...

To achieve miniaturization and integra-tion of FBG interrogator, we designed and fabricated a 36-channel array waveguide grating (AWG) on silica-based planar lightwave circuits (PLC) as a key

AdvancedPhotonicsResearch_revised_CLEAN

Keywords: arrayed waveguide grating (AWG), bandwidth, cascading, high resolution, flat-top response Abstract: Arrayed waveguide gratings (AWGs) are key optical components of various new

Arrayed waveguide grating-based high-frequency ultrasonic sensors

Arrayed waveguide grating (AWG) has been widely used as a multiplexer in FBG demodulation system because of its high stability, low loss and fast read-write ability. They substitute expensive and

Arrayed Waveguide Gratings – AWG

Figure 1: Structure of an arrayed waveguide grating. Particularly for AWGs with large numbers of channels, a high precision of the fabrication is required for achieving

High-Resolution Arrayed-Waveguide-Grating-Assisted Passive

A high-resolution 64-channel arrayed-waveguide-grating-assisted silicon- integrated optical phase array is demonstrated for 2-D beam steering. A field of view o

NTT Technical Review, Vol. 19, No. 4, Apr. 2021

Abstract We describe the progress in integrated wavelength-division multiplexing (WDM) photoreceivers that feature low-loss arrayed waveguide gratings (AWGs) for high-speed throughput of up to 100

Custom Arrayed Waveguide Gratings with Improved Performance

Arrayed waveguide gratings (AWGs) are key optical components of various new applications in telecommunication, astronomy, medical imaging, and spec-troscopy. It is a very powerful integrated

Optimization Method for Center Frequency Accuracy of

The arrayed waveguide grating (AWG) is an essential component in dense wavelength division multiplexing (DWDM) systems. With advancements in

Arrayed Waveguide Gratings on Integrated Thin-Film Lithium Tantalate

Abstract: Arrayed Waveguide Gratings (AWGs) are ubiquitous and efficient photonic devices used to split and combine different wavelengths of light.

Narrow-channel-spacing 32-channel arrayed

A 32-channel 50-GHz spaced arrayed-waveguide grating with our innovative configuration has been designed and fabricated. The performance of the device has been fully tested by using a tunable

Custom Arrayed Waveguide Gratings with Improved Performance

In this review, an overview of the available methods for improving the bandwidth, spectral resolution, and transmission function shape of AWGs is provided. The working principle as well as the advantages

4 Arrayed Waveguide Gratings

Other advantages of CVD processes in silica waveguide fabrication are both lower stress (reduced birefringence) in waveguide layers and higher layer uniformity over large wafer areas, and these

PLC-Based Arrayed Waveguide Grating Design for Fiber Bragg Grating ...

The arrayed waveguides end face is uniformly arranged on the grating circumference, so the diffracted light arrives at the arrayed waveguides end face with the same phase; then, after the length

Review Paper of Array Waveguide Grating (AWG)

Abstract – An array waveguide grating multiplexer and demultiplexer in particular is one of most successful optical filters and it is a key component of photonic networks and it is cost-effective

Review paper for developments in Array Waveguide Gratings

The proposed work reviews the evolution of Arrayed Waveguide Gratings (AWG) from concentric phased arrays to present day design. The article covers different designs and materials,

Silicon Nanowire-Assisted High Uniform Arrayed

Abstract and Figures Determining how to improve the non-uniformity of arrayed waveguide grating (AWG) is of great significance for dense wavelength

Active phase correction of high resolution silicon photonic arrayed ...

Abstract: Arrayed waveguide gratings provide flexible spectral filtering functionality for in-tegrated photonic applications. Achieving narrow channel spacing requires long optical path lengths which

High-Resolution Arrayed-Waveguide-Gratings in

A comprehensive design of a folded-architecture arrayed-waveguide-grating (AWG)-device, targeted at applications as integrated photonic

Silicon Nanowire-Assisted High Uniform Arrayed Waveguide Grating

Among different DWDM technologies, arrayed waveguide grating (AWG) is one of the most com- monly used technical routes, due to its small crosstalk, low loss, and compact integration [5–7].

High-Performance Compact 48-Channel Arrayed Waveguide Grating

Increasing the number of channels typically leads to larger chip sizes, which is contrary to the trend of higher chip integration. Here, we simulate and design a compact 48-channel 100 GHz

Silicon-Based Arrayed waveguide gratings for WDM and

Abstract We compare the performance of silicon-based arrayed waveguide gratings (AWGs) with star couplers of Rowland and Confocal configurations, respectively, for both TE and TM

Arrayed Waveguide Gratings

High precision fabrication is crucial for AWGs, especially for devices with numerous channels, to minimize channel cross-talk. AWGs can be made from various

SPIE_AWG_Manuscript_8

A promising photonic technology to achieve these requirements is Arrayed Waveguide Gratings (AWGs). We have developed our first generation of AWG devices using a silica-on-silicon substrate

Serial Arrayed Waveguide Grating | T2 Portal

Serial Arrayed Waveguide Grating enables higher resolution wavelength separation. Traditional AWGs split the optical signal into multiple parallel paths each with a

Arrayed Waveguide Grating

SENKO''s AWG offers customizable specifications and a high degree of uniformity across high channel counts (DWDM spectrum). Working with end-users, SENKO is also able to offer customized

All-Optical Signal Processing and Routing with Spectral Control by a ...

We proposed and designed novel arrayed-waveguide gratings (AWGs) for time-to-space (T-S) conversion-based high-speed optical signal processing. Recently, the frequency selectivity of AWGs

Arrayed waveguide grating

Arrayed waveguide gratings (AWG) are commonly used as optical (de)multiplexers in wavelength division multiplexed (WDM) systems. These devices are capable of multiplexing many wavelengths into a single optical fiber, thereby increasing the transmission capacity of optical networks considerably. The devices are based on a fundamental principle of optics, which states that light waves of different wavelengths do not interfere linearly with each other. This means that, if each channel in an optical communication

(PDF) High-resolution arrayed waveguide grating-assisted passive ...

Integrated optical phased arrays (OPAs) based on arrayed waveguide gratings (AWGs) enable two-dimensional (2D) beam steering through wavelength tuning. Achieving a high vertical

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