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Light Comes Alive!

Highly efficient tunable filter for broadband light source

Jun Hee Kang, Spectrolight Inc. 19800 MacArthur Blvd., Suite 300, Irvine, CA 92612

Abstract
A new simple and compact approach to tunable wavelength filtering combines the flexibility of a monochromator with the imaging functionality of a thin-film filters, and is ideal for use in both illumination and image acquisition.

Traditional tools for wavelength filtering, such as monochromators and filter wheels, all have some type of limitation that often compromises their use in scientific and industrial settings. However, a new type of wavelength filtering device called Flexible Wavelength Selector (FWS) now offers a combination of advantages for both illumination and image filtering. Specifically, FWS devices combine the wavelength tunability and bandwidth control of a monochromator with the circular uniform aperture of a filter wheel. These devices are highly efficient, simple, and cost-effective. In this article, we describe this innovative product and show its application with broadband lamp.

Figure 1. FWS Poly

Methods for filtering light according to wavelength can be divided into three groups: filters (cut-off, dichroic, etc.), monochromators, and newer "niche" technologies. Each method has its advantages.

Filters. In the detection part of a micros cope, filters and dichroic beamsplitters are the commonly used means of wavelength filtering just prior to the camera or eyepiece. Similarly, these filters can be used with a broadband light source for wavelength-selective illumination instead of an LED or laser. The filter is typically based on thin film dielectrics sometimes incorporating colored glass for extra wavelength blocking. The limitation of filters and fiber

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Highly Efficient Tunable Filter for Broadband Light Source

A new, simple and compact approach for tunable wavelength filtering is introduced with a device called Flexible Wavelength Selector. This new device combines the flexibility of a monochromator with the imaging functionality of a thin-film interference filter, and is ideal for use in both illumination and image acquisition in optical microscopes. The main features include high transmission efficiency, circular round aperture of up to 10 mm and independent tuning of center wavelength and bandwidth.

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