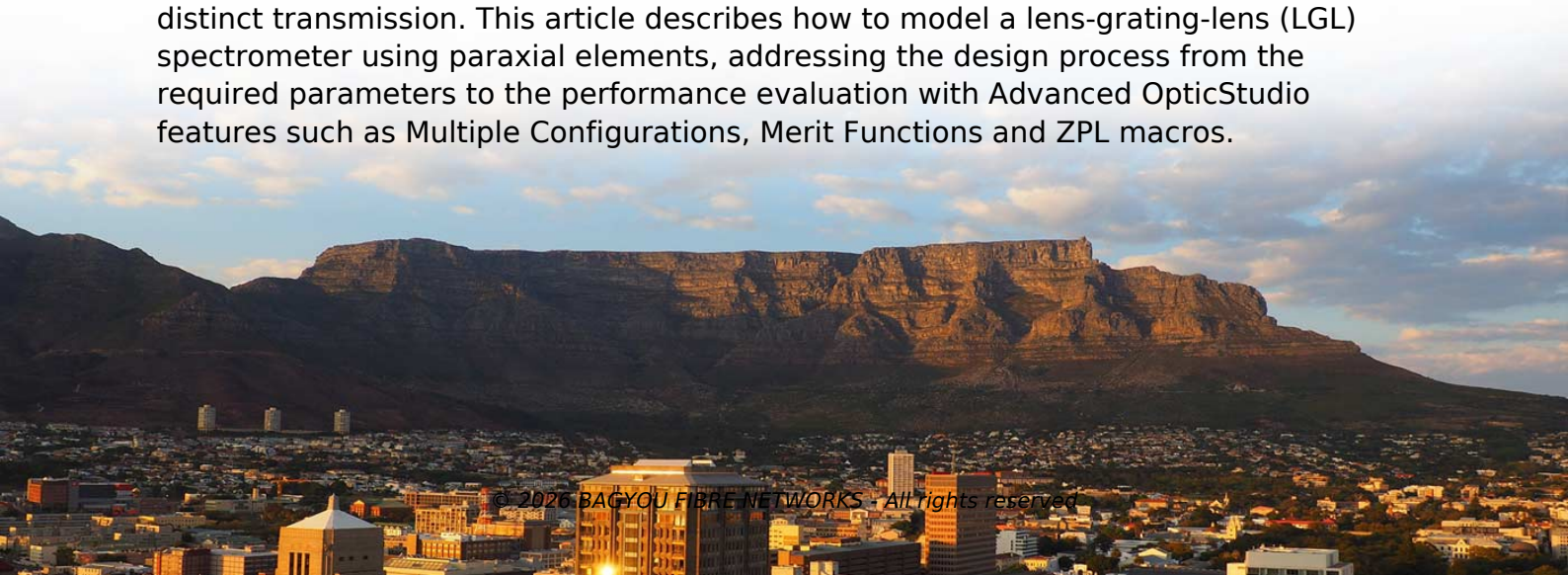
Spectrometer Algorithm



Overview

This guide provides some simple and easy to use design guidelines and formulas for designing, evaluating and comparing various diode array, diffraction grating based spectrometers designs The input to the design process is the wavelength range you want to cover and the optical. This guide provides some simple and easy to use design guidelines and formulas for designing, evaluating and comparing various diode array, diffraction grating based spectrometers designs The input to the design process is the wavelength range you want to cover and the optical. This guide provides some simple and easy to use design guidelines and formulas for designing, evaluating and comparing various diode array, diffraction grating based spectrometers designs The input to the design process is the wavelength range you want to cover and the optical resolution by which. The grating spectrometer is an instrument that uses a beam-splitting element grating to decompose incident composite light into monochromatic light with a narrow spectra. If matched with the corresponding light source and receiving system, the corresponding spectrometer can be formed, which can. The raw data from a spectrometer is a list of pixel index with associated intensity. The process of wavelength calibration is to map pixel index to wavelength to yield a wavelength-calibrated spectrum. In this example we use both neon and argon lines. Among various miniaturization approaches, filter-based miniaturization is a promising implementation by utilizing broadband filters with distinct transmission. This article describes how to model a lens-grating-lens (LGL) spectrometer using paraxial elements, addressing the design process from the required parameters to the performance evaluation with Advanced OpticStudio features such as Multiple Configurations, Merit Functions and ZPL macros.



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Article Content

Spectrometer Design Guide

On the following pages are shown two common spectrometer geometries; the transmission grating based and the crossed Czerny-Turner. Also, the figures defines the key design parameters of a

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After analyzing the working principles of a spectrometer and the causes of the above-mentioned difficulties, we propose the following calibration

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Presently, the algorithms used for spectral reconstruction in spectrometers can be generally classified into two categories: traditional

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Robust Full-Screen Wavelength Calibration Algorithm

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In spectrometer measurement, it is very important to accurately calibrate the wavelength of all target characteristic spectra. Although wavelength calibration methods have long been

A Spectral Reconstruction Algorithm of Miniature Spectrometer ...

The miniaturization of spectrometer can broaden the application area of spectrometry, which has huge academic and industrial value. Among various miniaturization approaches, filter

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Here we propose a computational spectrometer spanning visible to mid-infrared by combining the Single-Spinning Film Encoder (SSFE) with a deep learning-based reconstruction

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Scanning spectrometers, which collect data at a sequence of wavelengths each of which is associated with a different grating orientation, have many of the same instrumental artifacts. However, in the

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Computational spectrometers has a great potential for real-time detection in site measurements. Reconstruction algorithms play a pivotal role. Traditi

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In this paper, we propose an algorithm of spectral reconstruction based on sparse optimization and dictionary learning. To verify the feasibility of the reconstruction algorithm, we design and implement

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