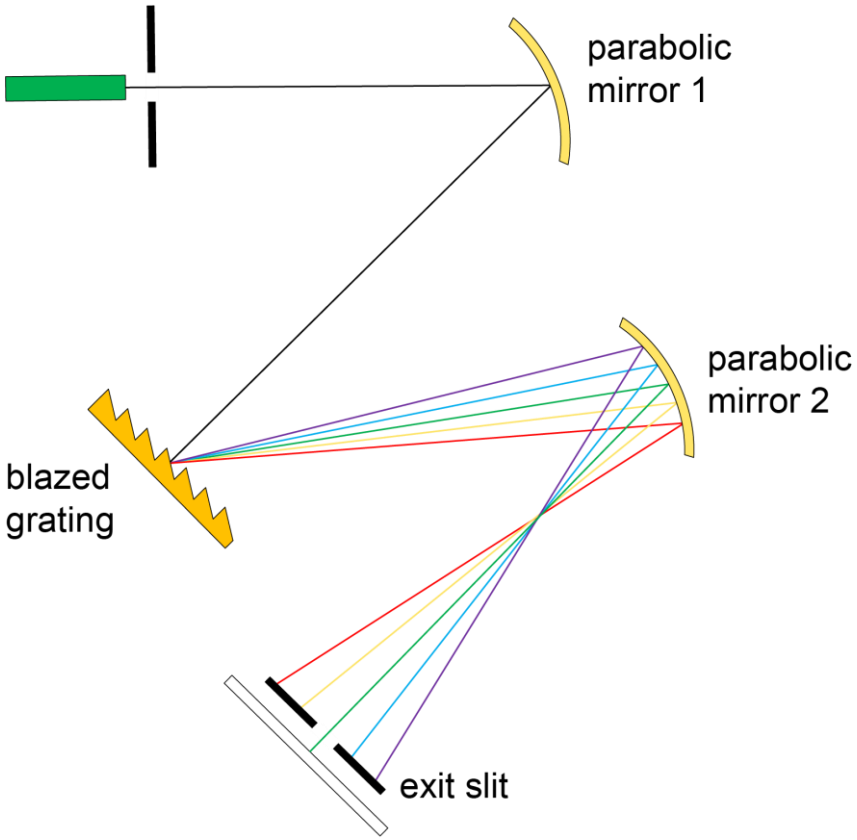
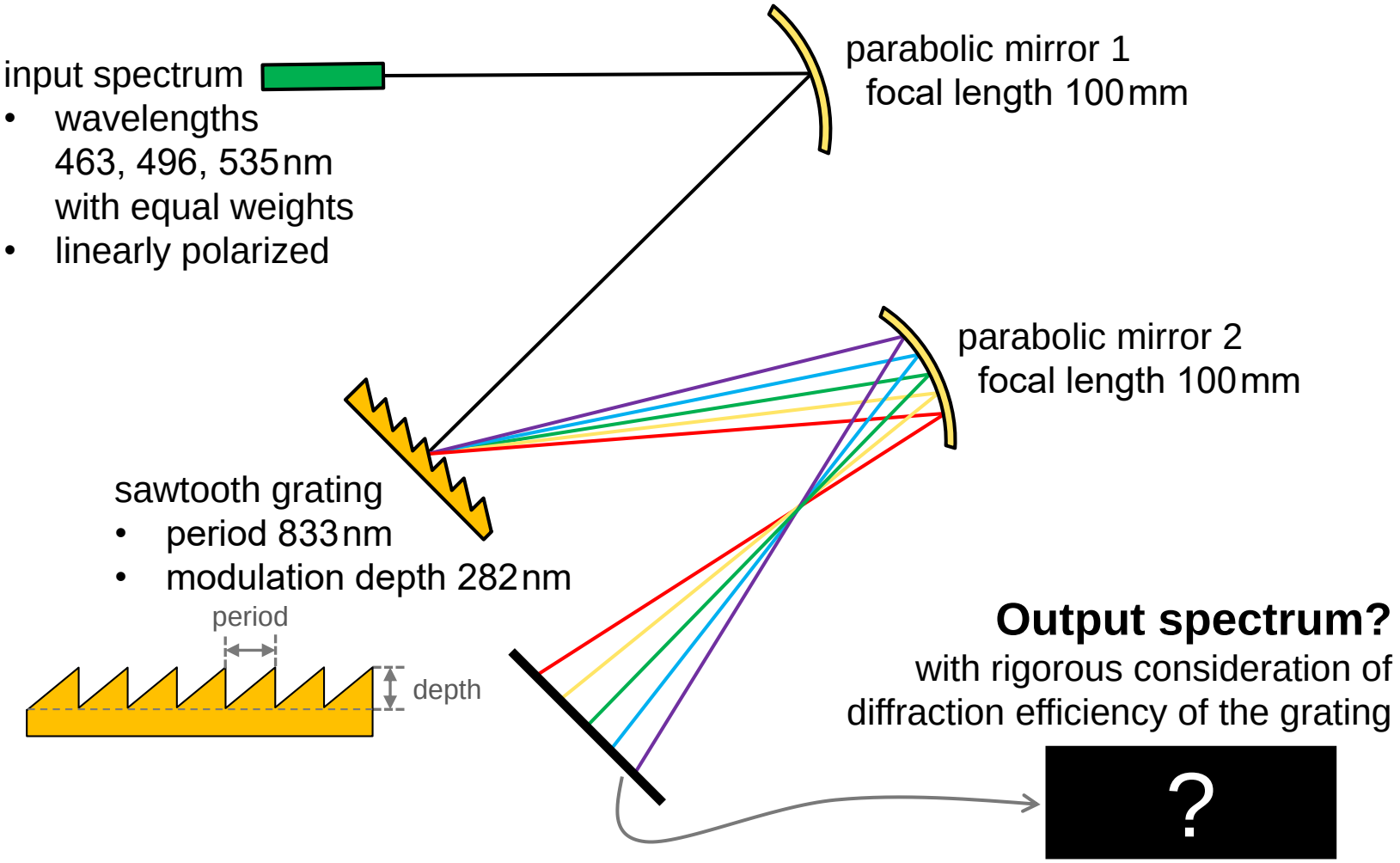
Diffraction Efficiency Analysis for a Czerny-Turner Setup

Abstract



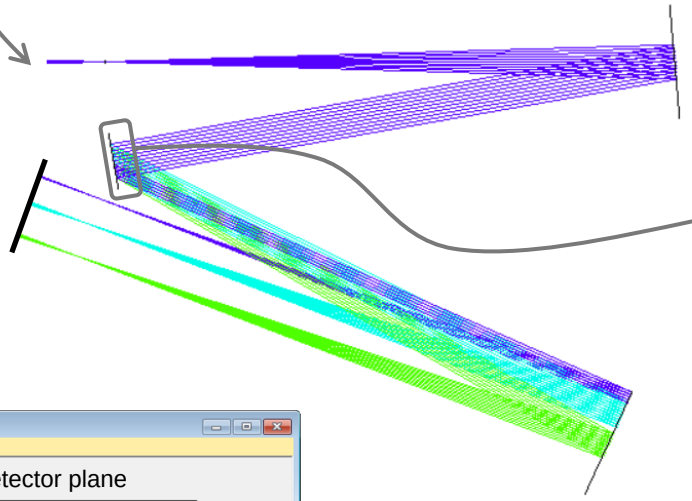
Czerny-Turner setup is widely used to analysis the spectral information of light sources. Typically, a parabolic mirror is used to collimated the source first, and then a diffraction grating will spatially separate the colors spatially. A simulation of the complete setup, including real reflective mirrors and diffractive gratings is presented. Especially, the diffraction efficiency of the grating calculated with Fourier modal method (FMM), and the corresponding result on the detector plane is shown.

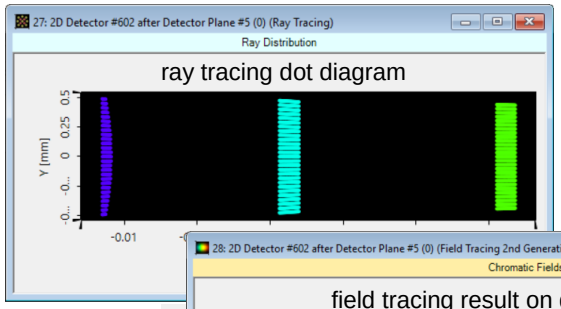
Modeling Task

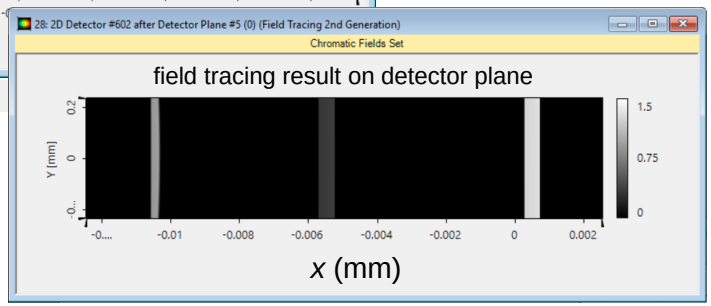


Results

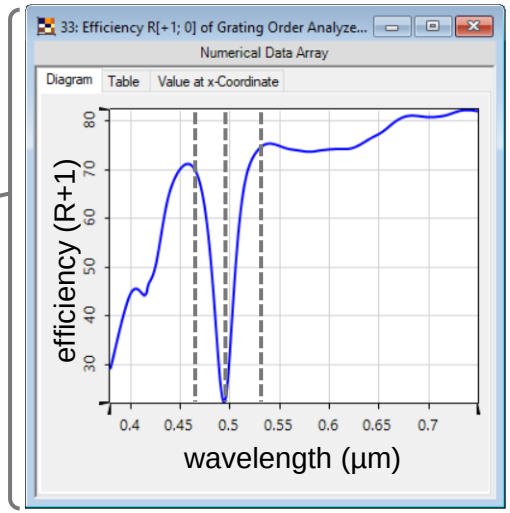
wavelengths 463, 496, 535 nm, with equal weights







Simulation of full system including rigorous grating simulation takes only 3 seconds.



grating diffraction efficiency of R+1 order calculated with Fourier modal method (FMM) and integrated in the system simulation

Document Information

title	Diffraction Efficiency Analysis for a Czerny-Turner Setup
version	1.0
VL version used for simulations	7.0.3.4
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