

Fast Spectroscopy with a Slitless Spectrograph - Using a Blazed Grating with Low Resolution

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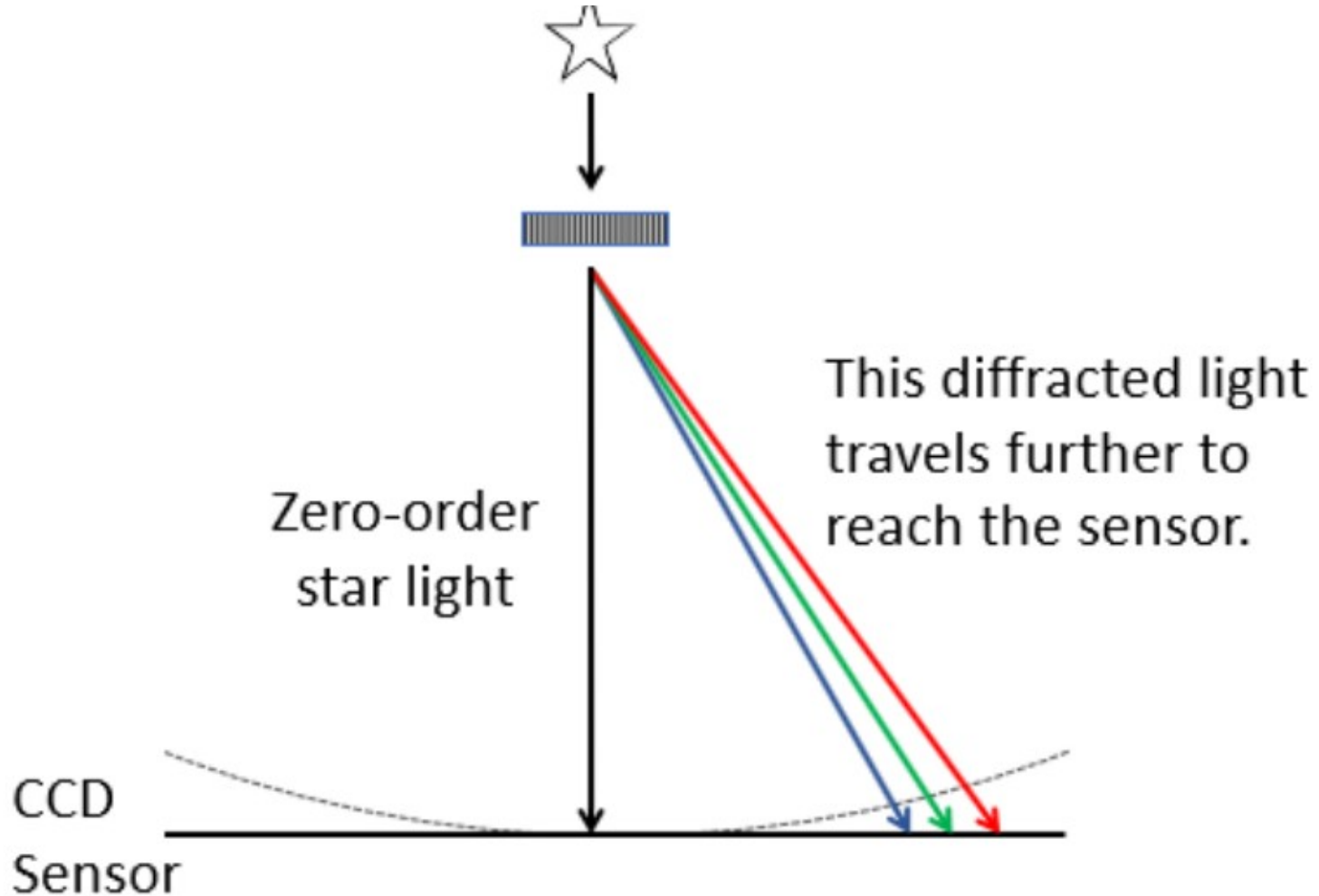
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Recording wavelengths dependent occultations

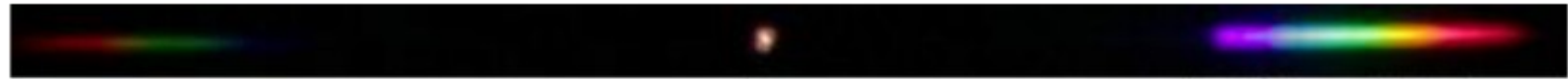
- 2 (or more) cameras with a beam splitter
- 1 camera with a prism or blazed grating

A prism or grating allows the selection of wavelengths AFTER the event!
It only needs a single camera !

General principle of a grating in a slitless spektrograph



Typical spectrum generated with a blazed grating



Star

Brighter of the two
spectra to the right.

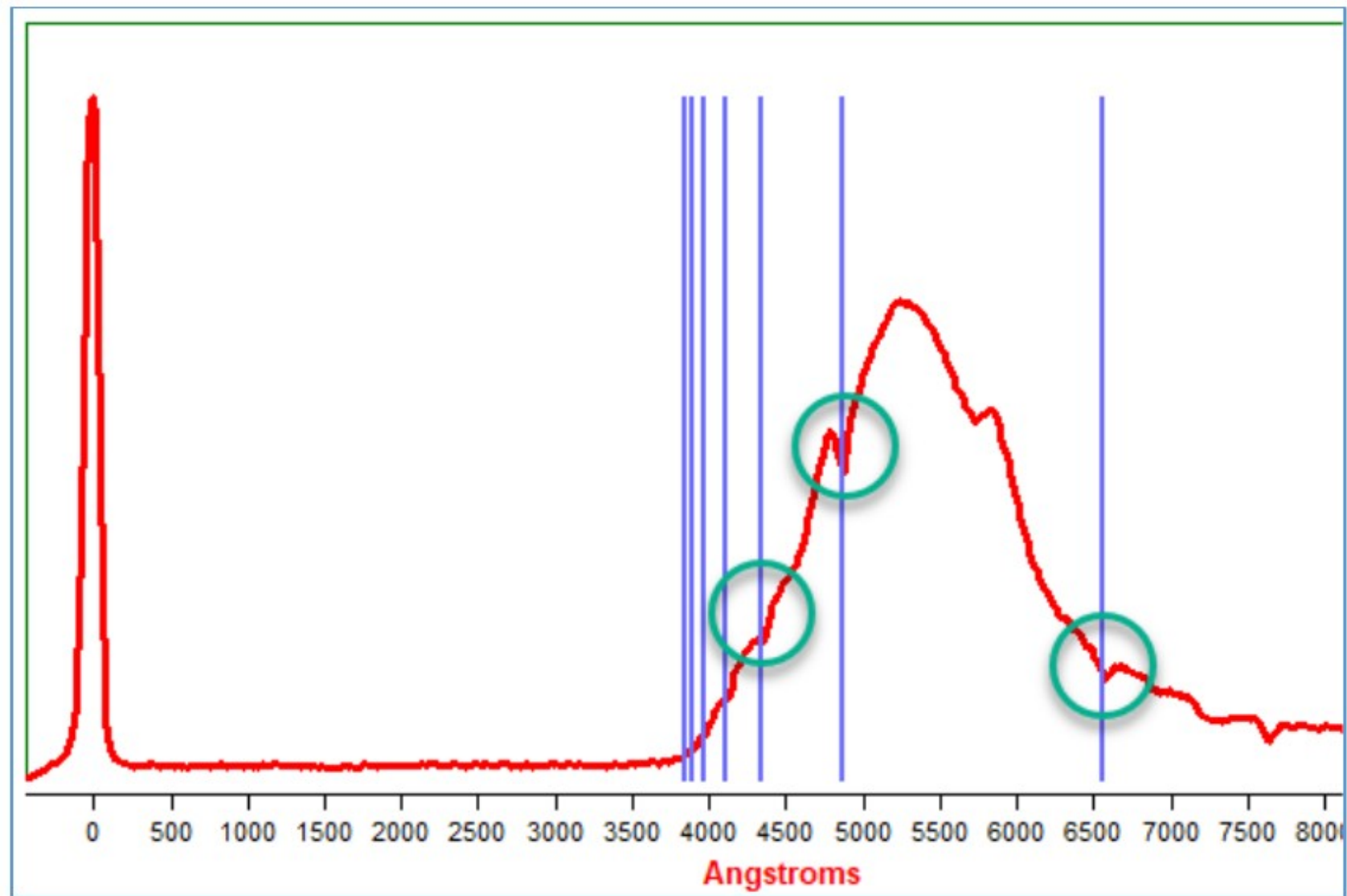


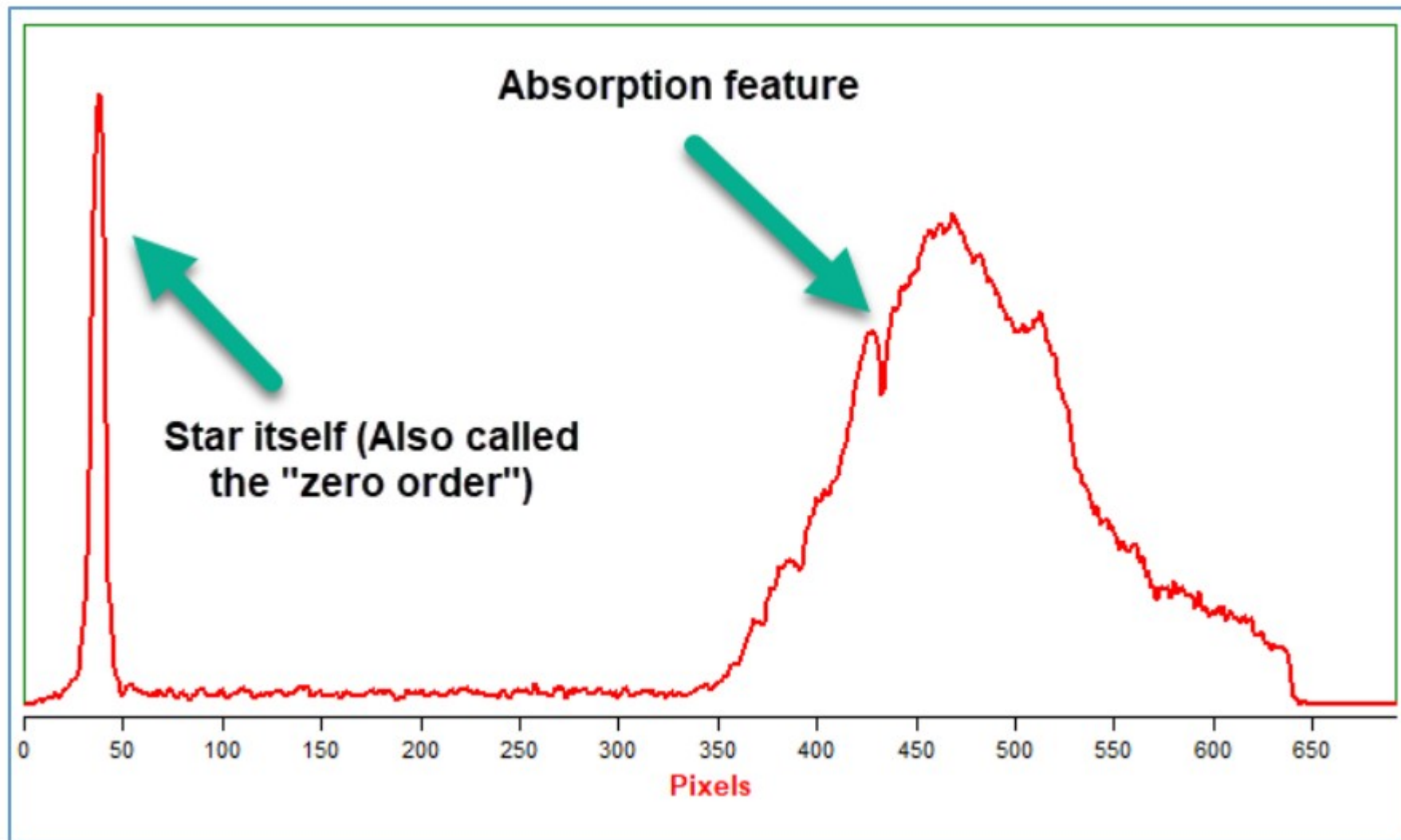
Region of interest for a spectrum



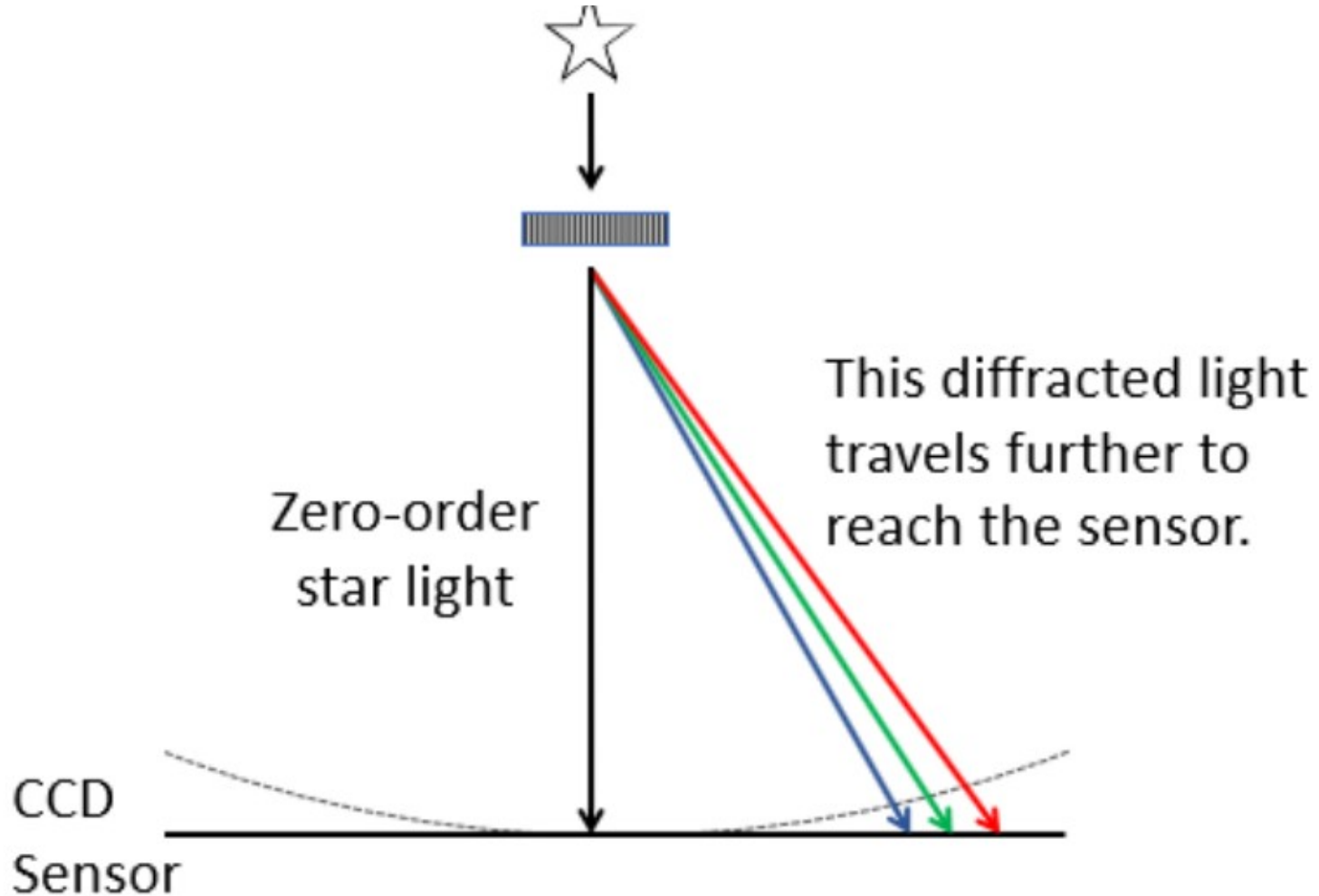
Resolution of spectrum is strongly dependent on focusing and on scintillation.

Very important: No saturation in the spectrum!

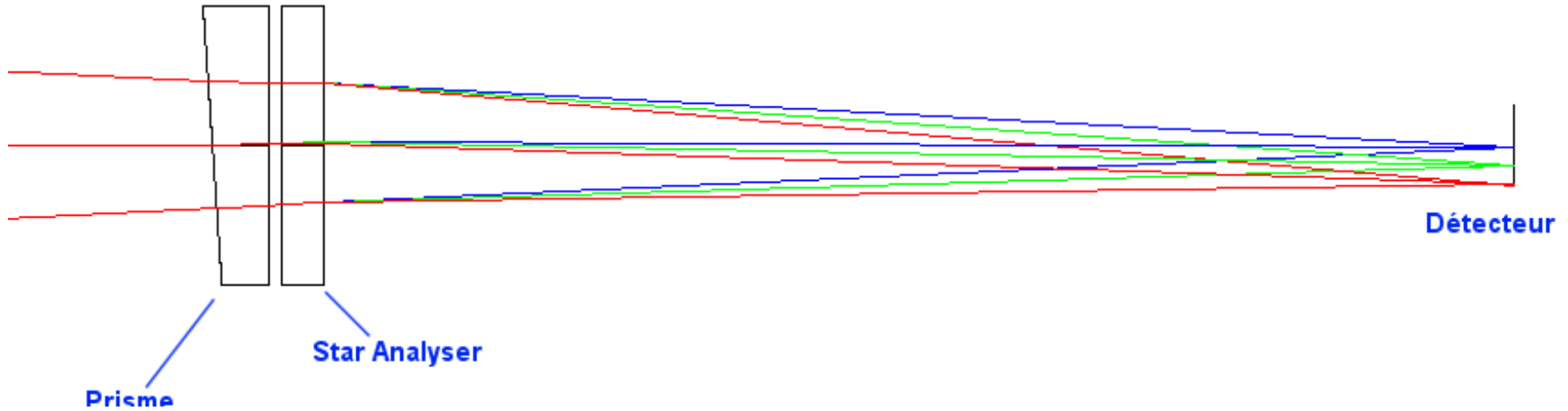




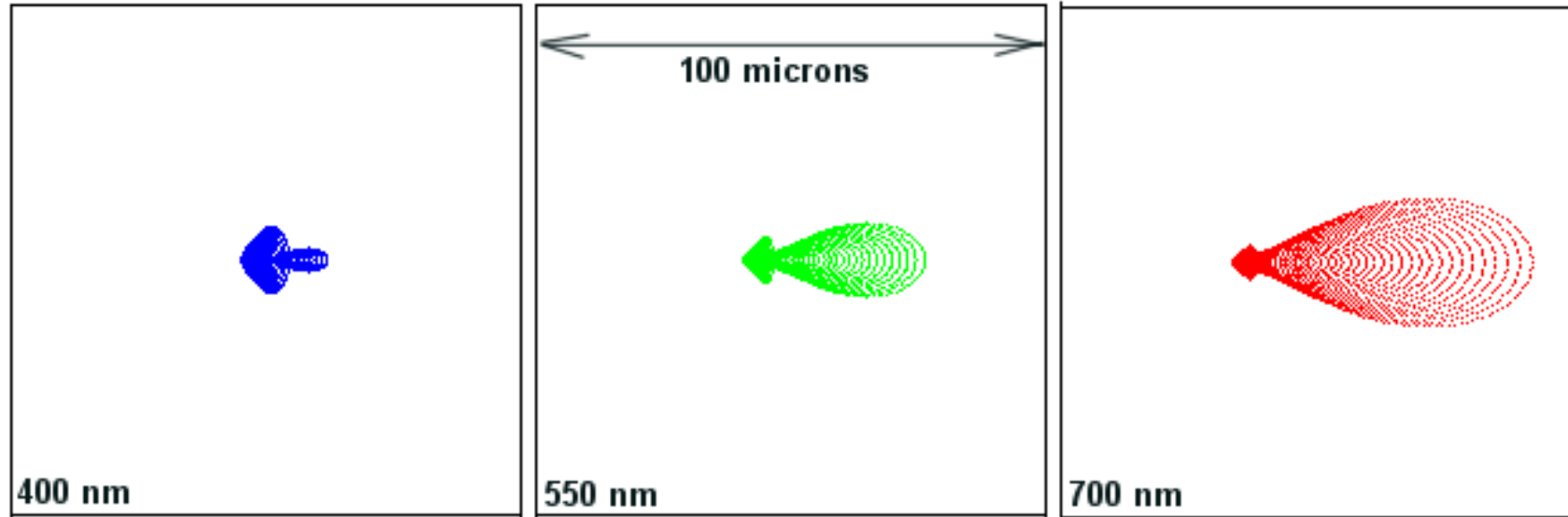
General principle of a grating in a slitless spektrograph



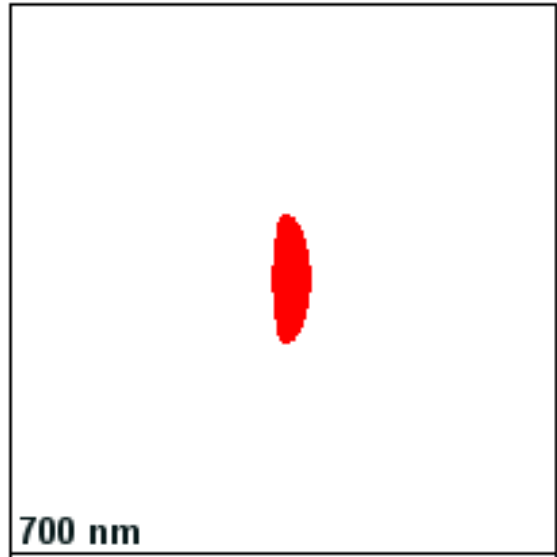
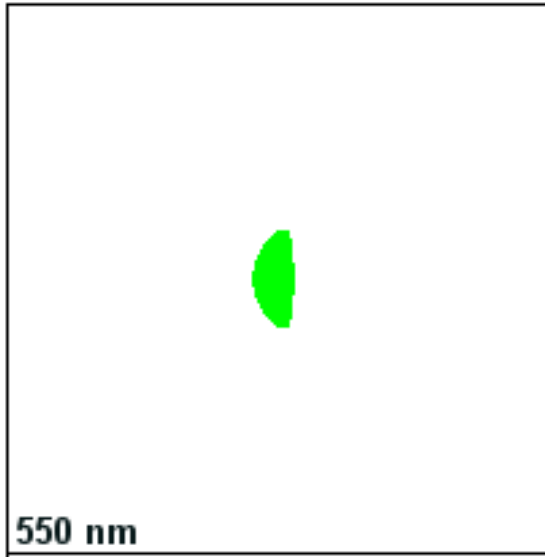
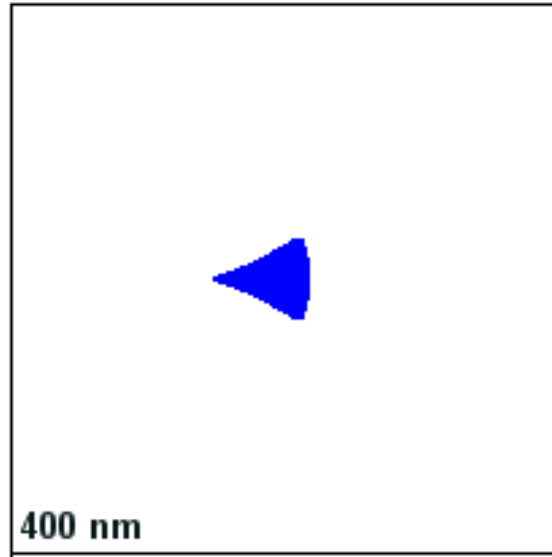
Adding a Prism to Enhance the Resolution

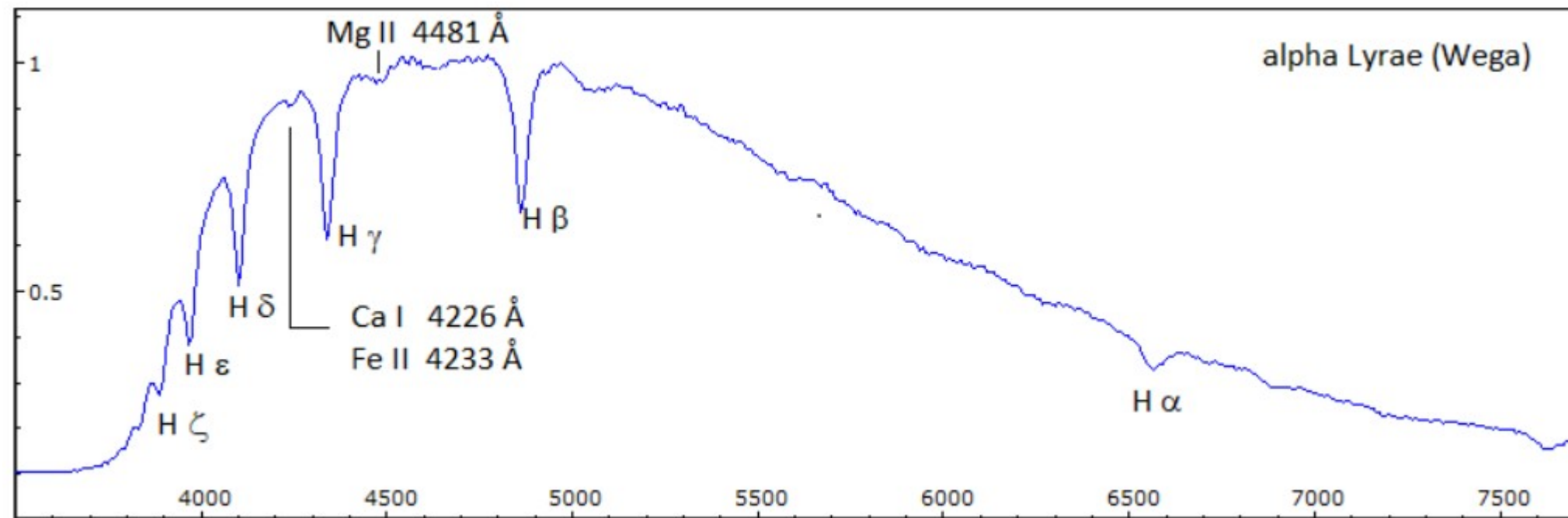


Spot diagram without a prism

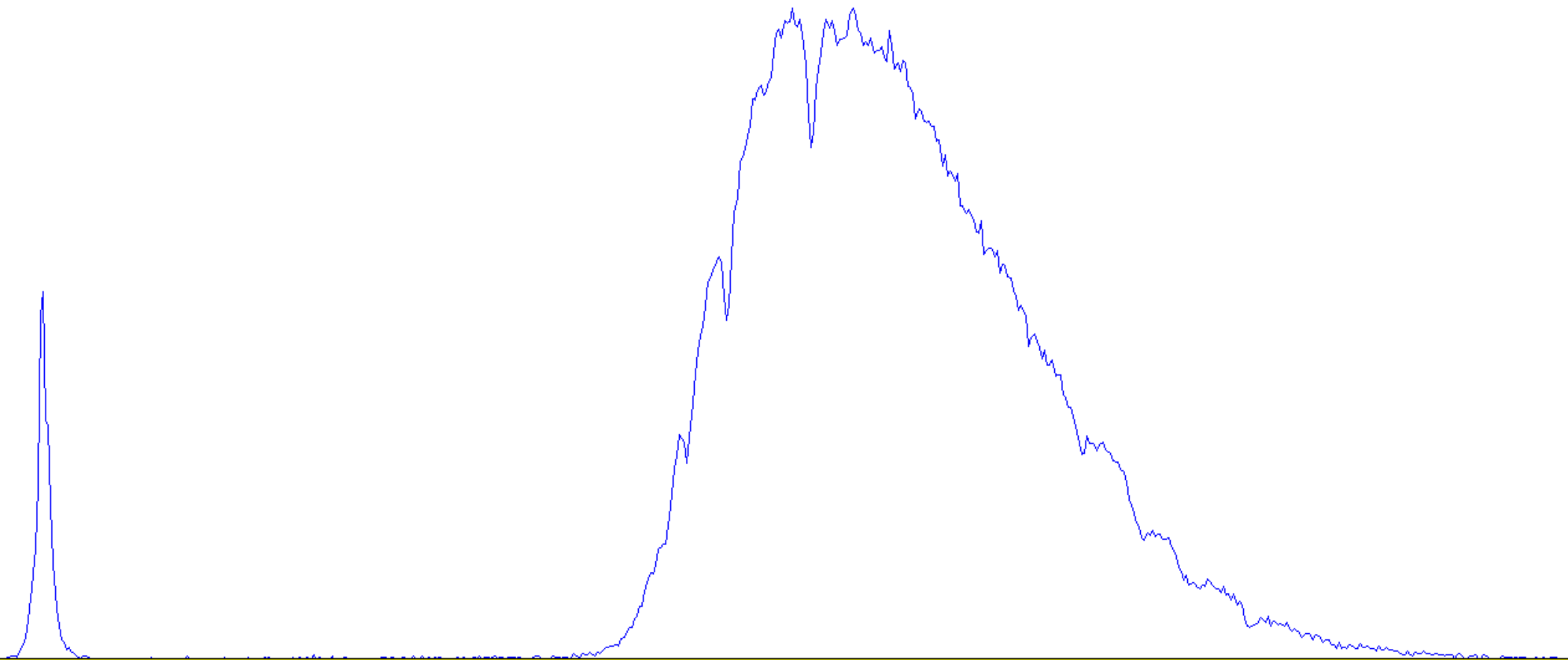


Spot diagram with a prism

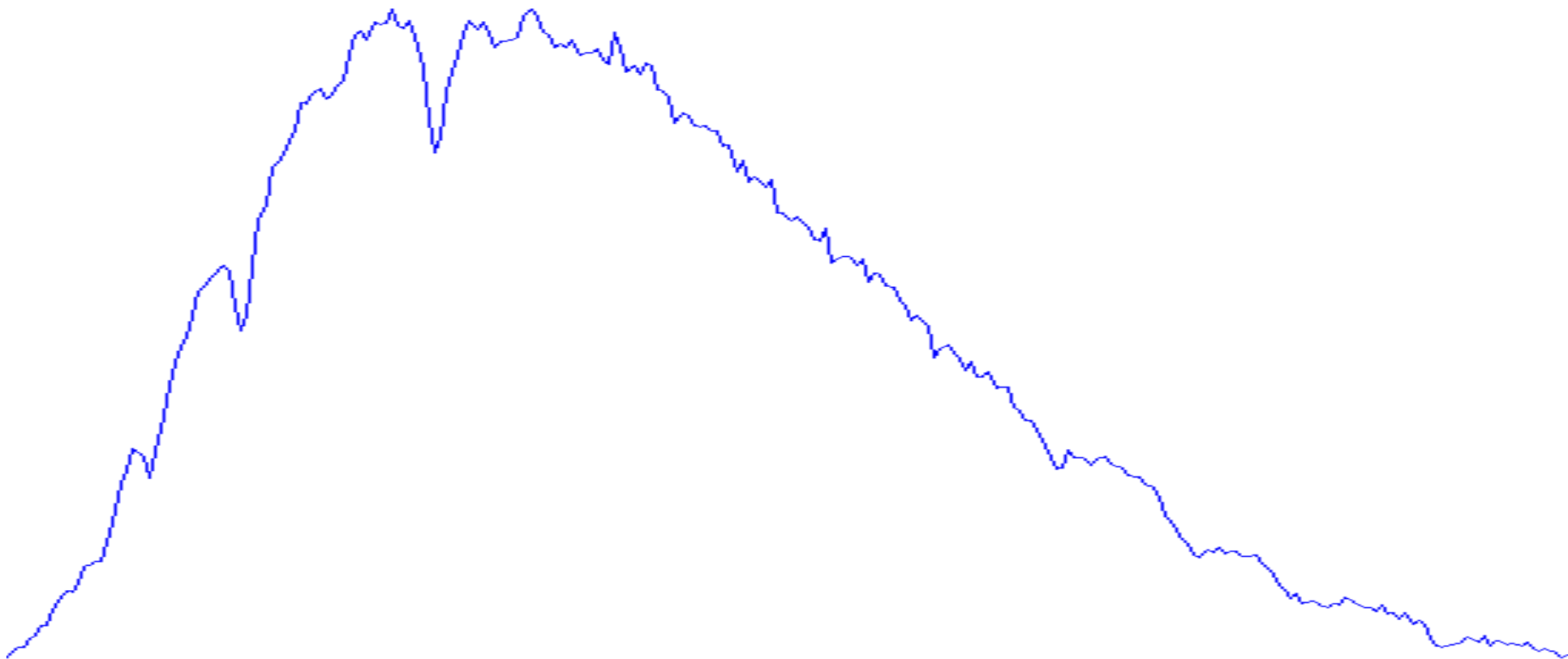




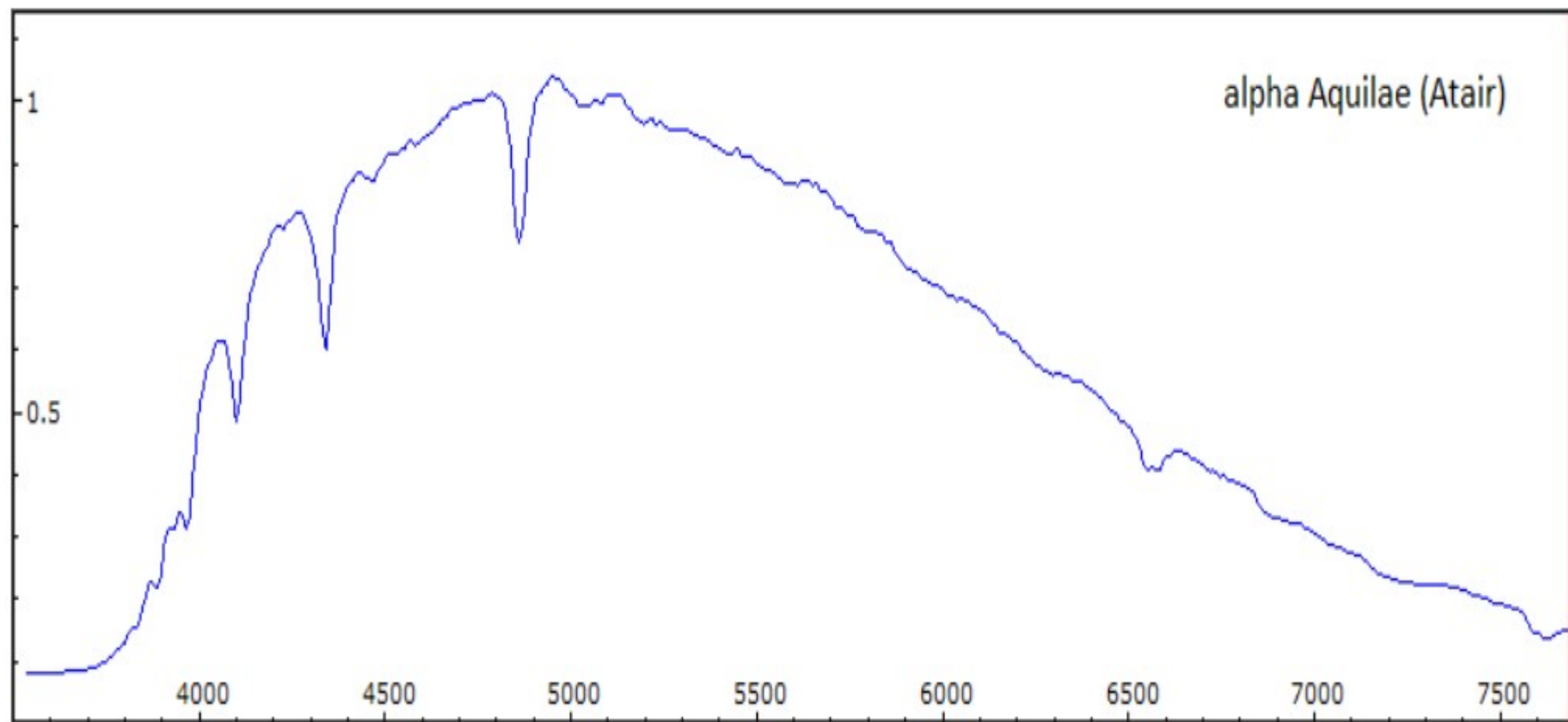
Altair: 280mm aperture, CCD = ICX445, Expo time 10 msec



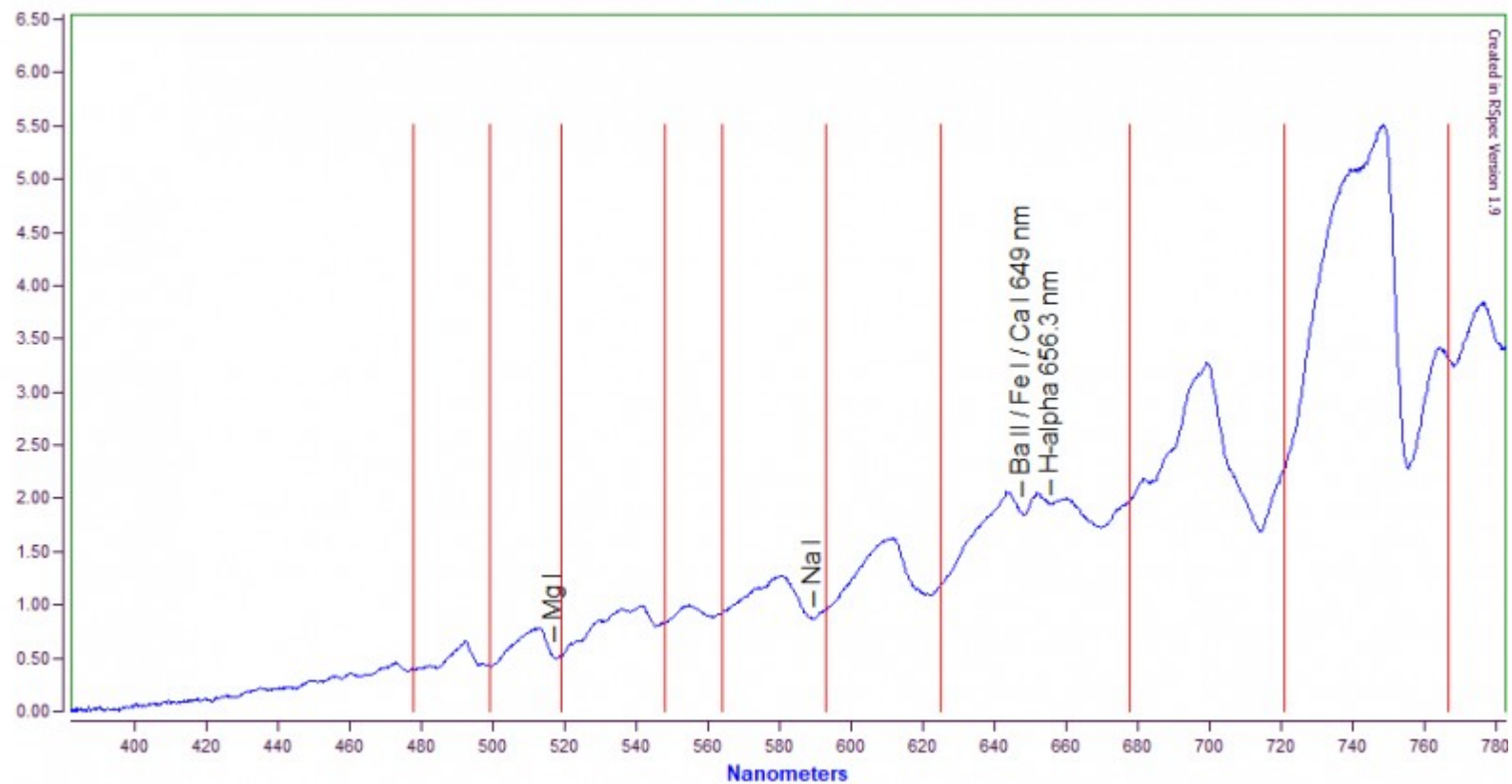
Altair: 280mm aperture, CCD = ICX445, Expo time 10 msec

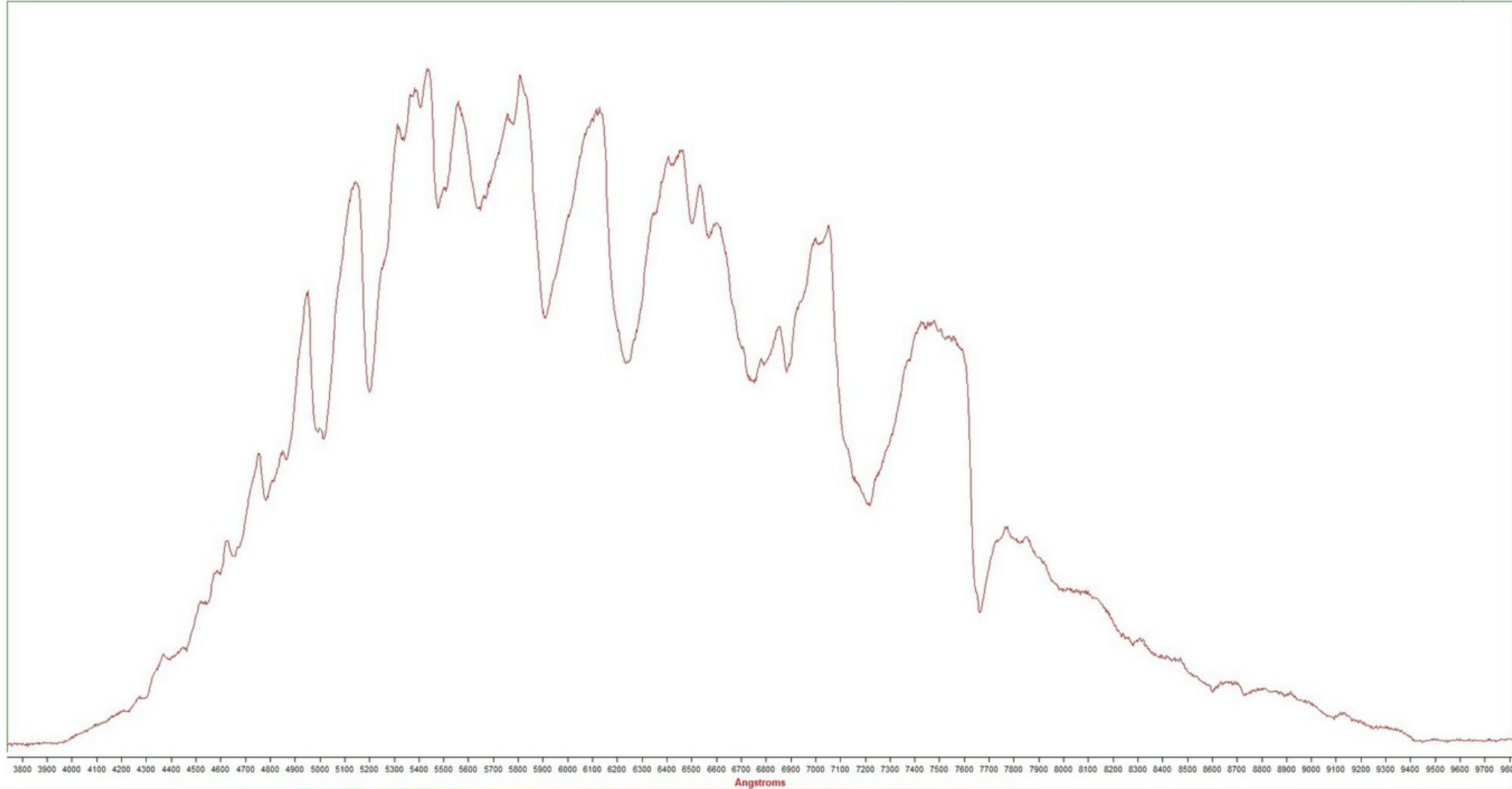


alpha Aquilae (Atair)



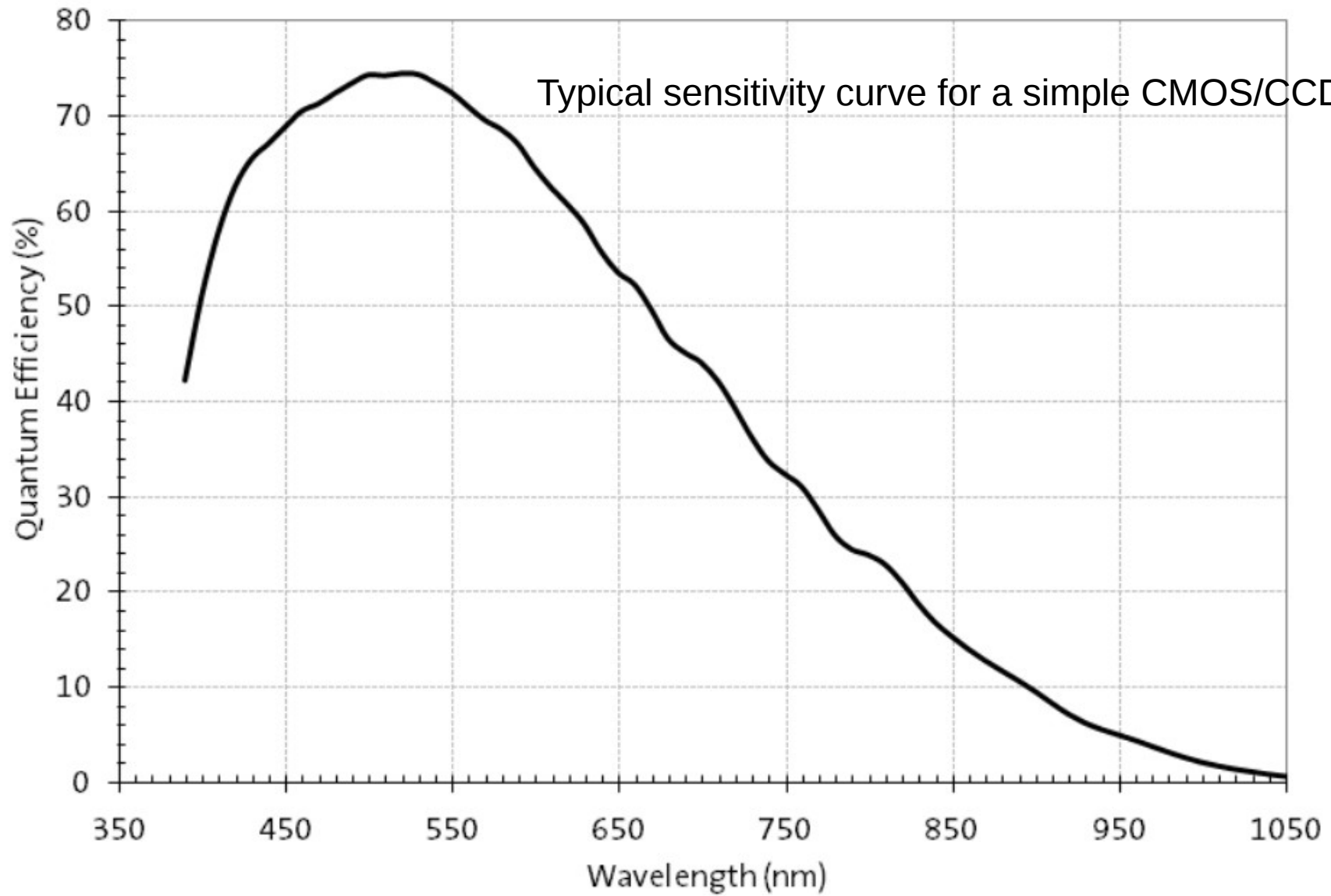
Alpha Orionis



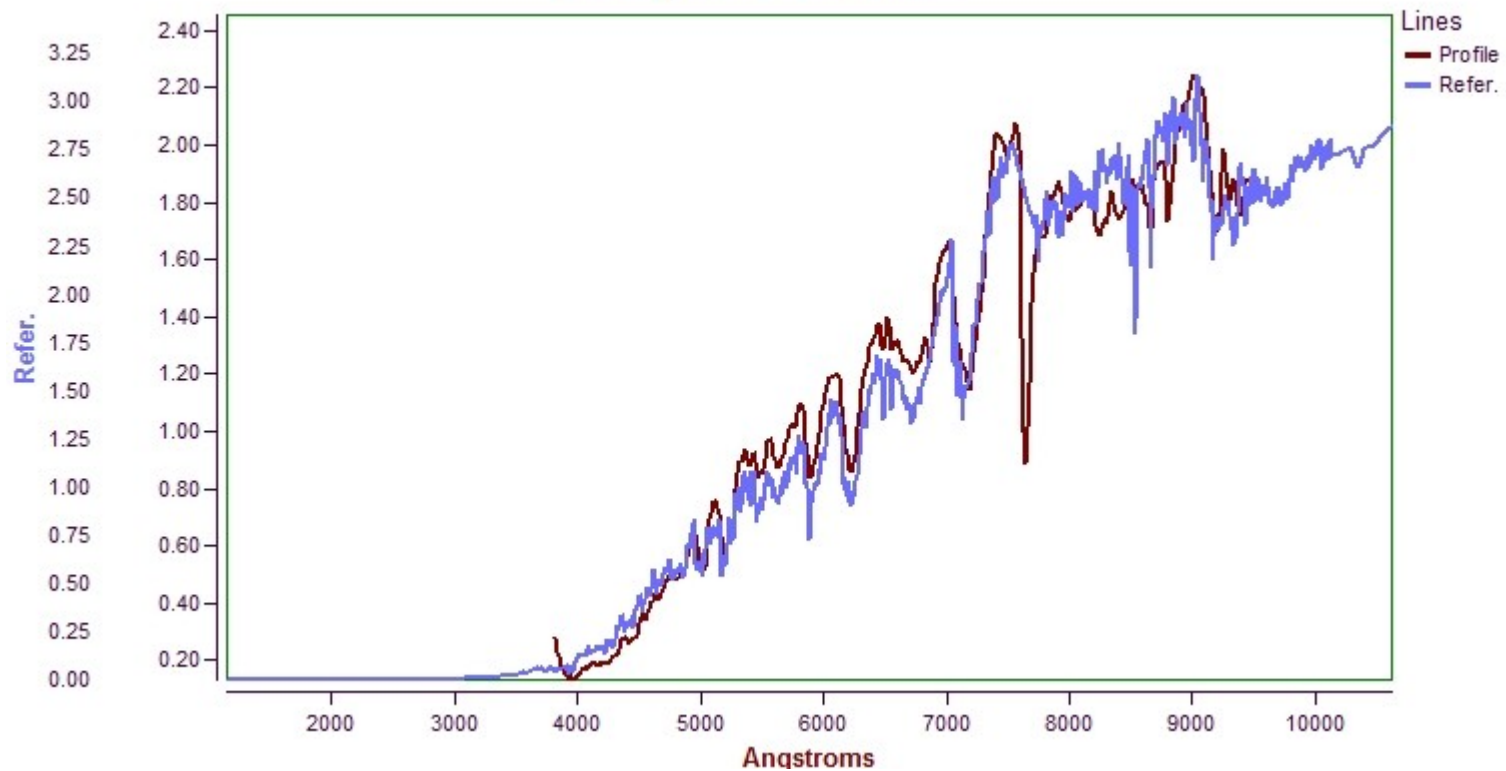


Angstroms





Betelgeuse - Calibrated



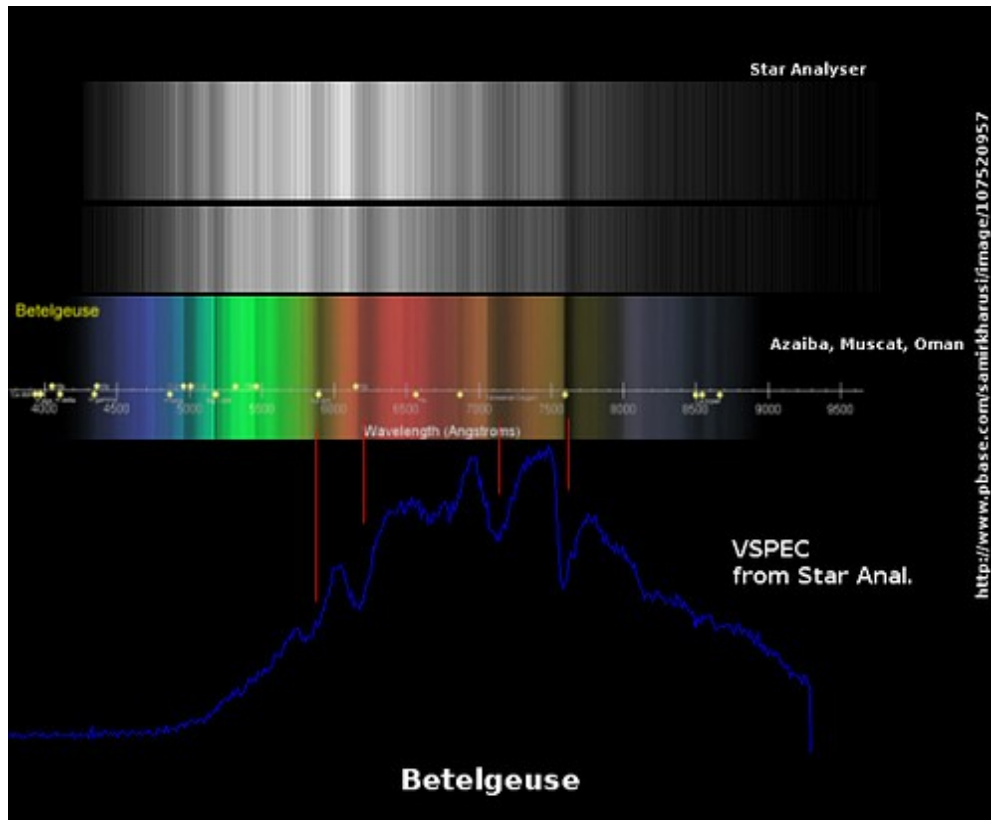




Abbildung 9: Spektrum von Alpha Herculis (Ras Algheti) mit der Kamera ASI 224 MC von ZWO

Profile

Betelgeuse 02-Feb-2020

Type M ref

Created in RSpec Version 1.9

