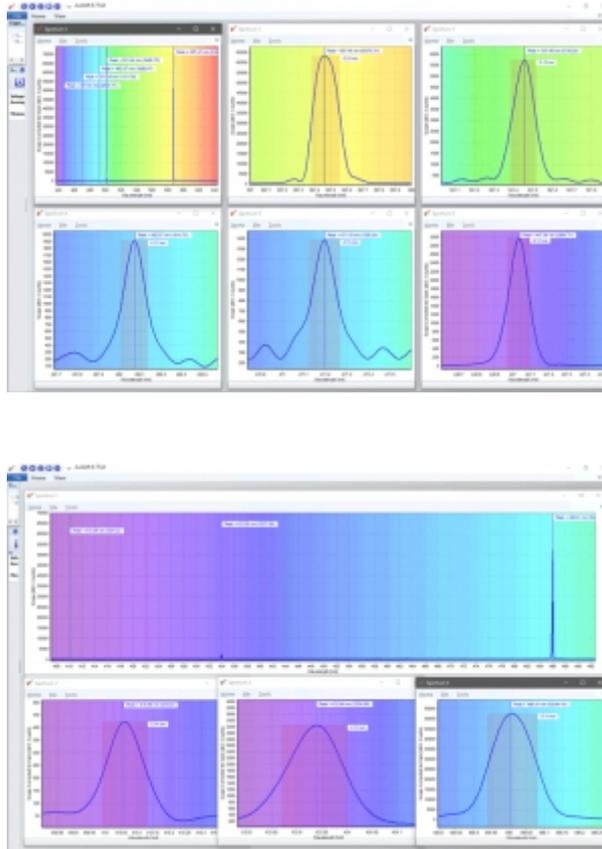


June Spectra of the Month: Plasma Measurements



In June, the Avantes engineering team used Optical Emission Spectroscopy (OES) to collect spectral measurements of Helium and Hydrogen in their plasma state in high-energy gas lamps using the high-resolution CMOS based miniature spectrometer AvaSpec-Mini4096-MKII.

With the amazing resolution of the new 4096 pixels AvaSpec-Mini, the atomic spectral lines of Hydrogen and Helium were recorded at FWHM (Full-Width, Half-Max) values averaging around 0.15nm. We recorded Helium peaks at 447, 471, 492, 501, and 587 nm. Peaks for Hydrogen were recorded at 410, 433, and 486 nm.

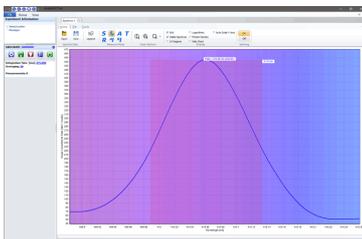
The AvaSpec-Mini4096CL was configured with a 1200 lines/mm grating for a wavelength range of 380nm to 618nm. This instrument included options for a detector collection lens DCL-UV/VIS-200, and order sorting filter OSF-305, with a 10 μ m slit installed. To obtain measurements, the team optically aligned a collimating lens to the glowing plasma to collect photon counts.

Equipment

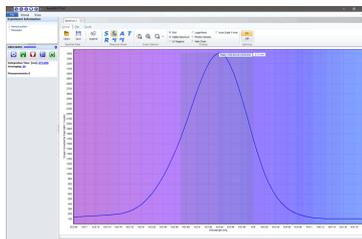
- Spectrometer: AvaSpec-Mini4096-MKII
- Light sources: Helium and Hydrogen gas tubes
- Collimating lens: COL-UV/VIS
- Fiber Optics: FC-UVIR400-1-MS
- Tripod

Spectra Images

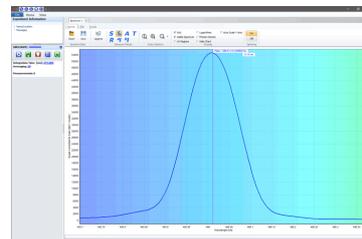
Hydrogen Measurements



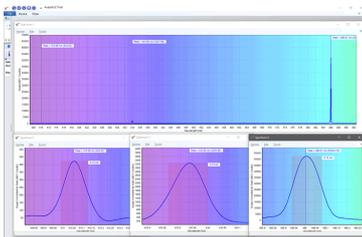
Hydrogen peak at 410 nm



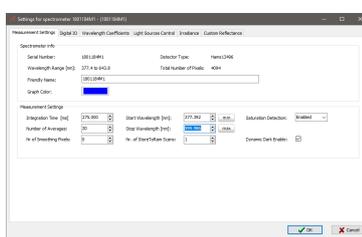
Hydrogen peak at 434 nm



Hydrogen peak at 486 nm

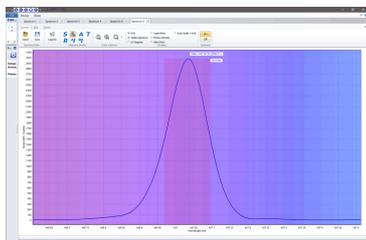


Hydrogen Tile view

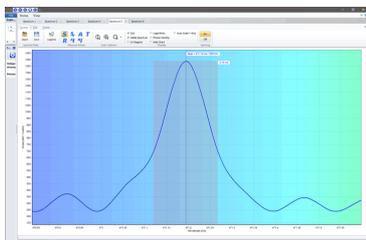


Spectrometer Settings Hydrogen

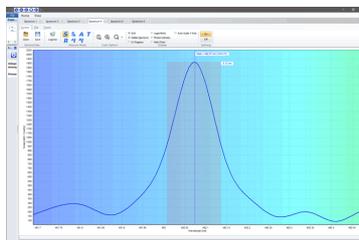
Helium Measurements



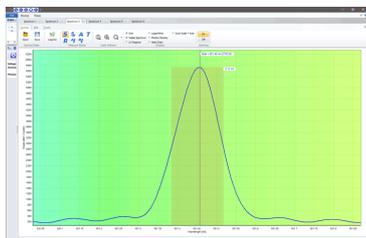
Helium Peak at 447 nm



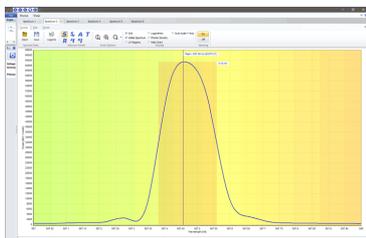
Helium Peak at 471 nm



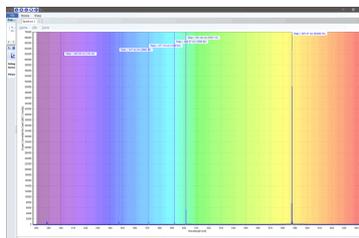
Helium peak at 492 nm



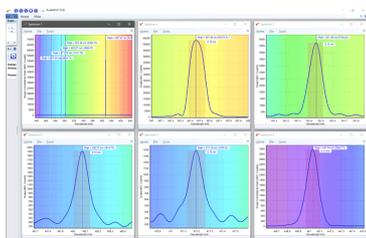
Helium peak at 501 nm



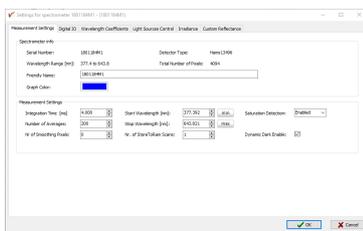
Helium Peak at 587 nm



Spectra overview



Helium
Tile View



Spectrometer settings
Helium



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