TIGA photonics

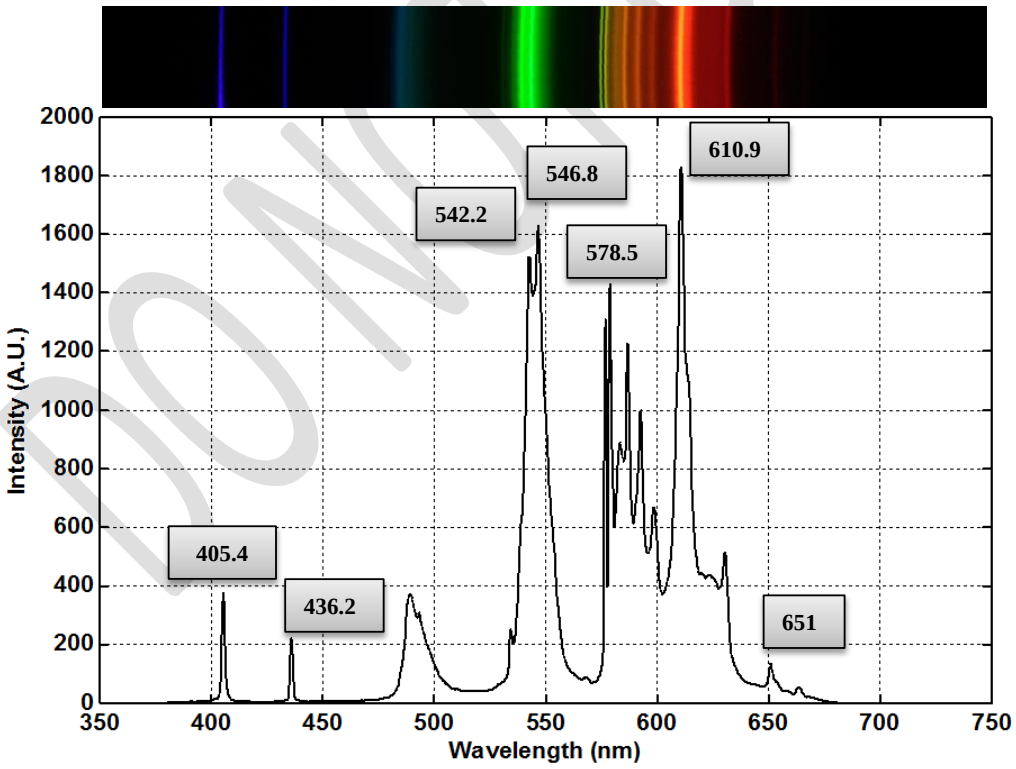
White Paper:

Spectrum analysis of different sources using the mobile spectral sensor

- **Spectrum of a CFL lamp and a 405 nm laser taken with a cell phone (iPhone 5)**

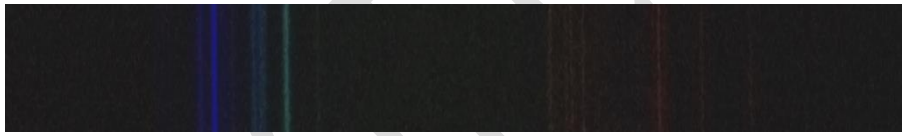
Ne and Ag strong lines given in NIST's website were used to calibrate the mobile spectrometer. The whole visible spectrum spans more than 70 percent of the cell-phone sensor being used. Notice the very high resolution around 546.8 (better than 1.8nms) and the good image quality and high SNR (Compare with Wikipedia en.wikipedia.org/wiki/Fluorescent_lamp).

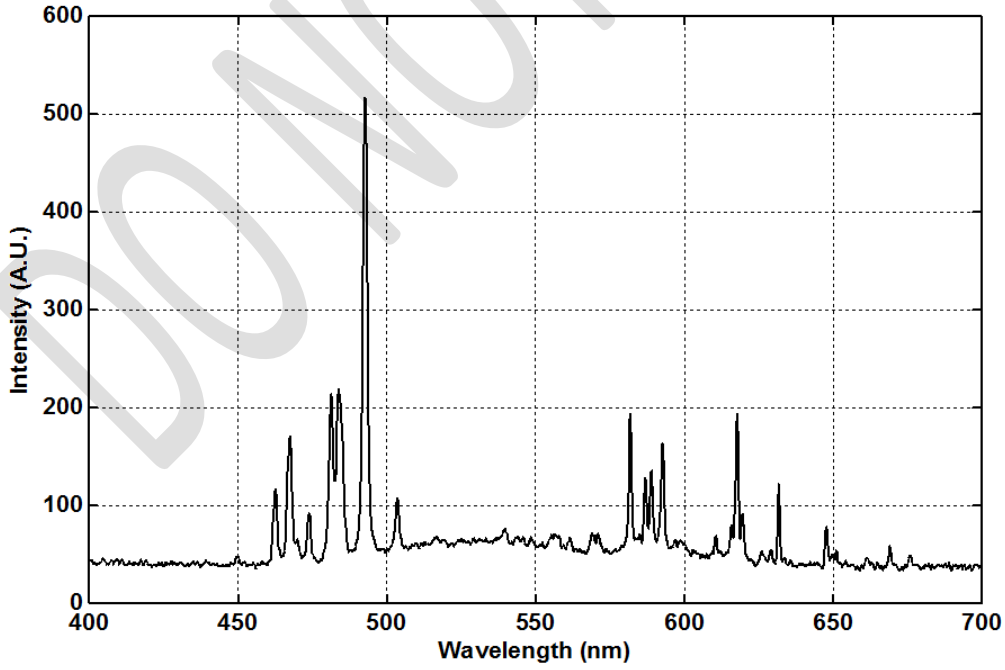
The NIR filter in the iPhone camera blocks radiation outside the visible range.



- **Spectrum of a Xenon spectral lamp taken using a cell phone (iPhone 5)**

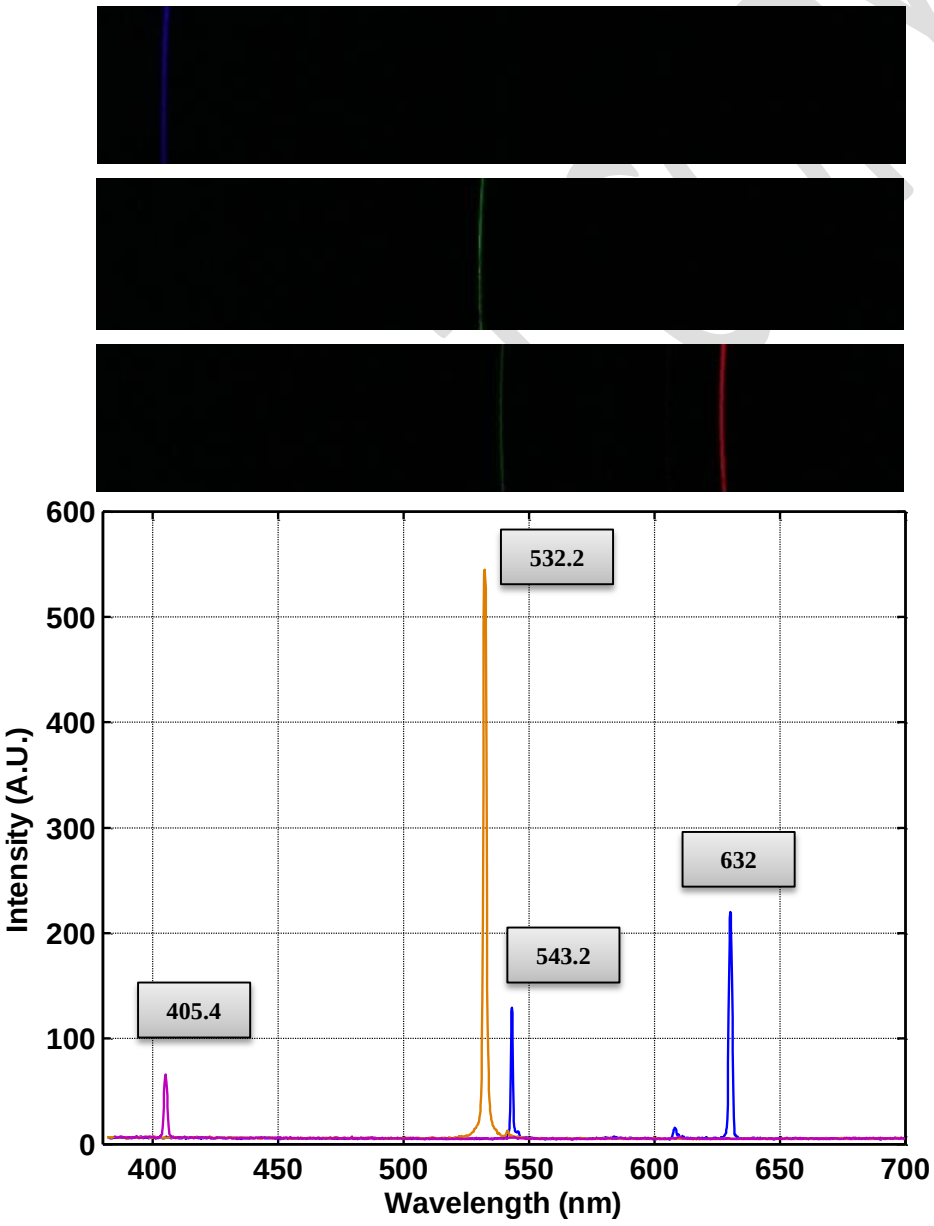
The spectrum of an Oriel spectral lamp is shown below. Xenon has most of it's strong peaks in the NIR region. Nevertheless our compact spectrometer can detect the ultra low intensity emission lines in the VIS region





- **Spectrum of a number of different LASERs taken with a cell phone (iPhone 5)**

The output of four different laser sources was measured and the results are shown below. HeNe (green and red gas lasers), 405 nm diode laser and 532 nm frequency doubled NdYaAg laser.



- **Spectrum of a Neon lamp taken with a cell phone (iPhone 5)**

The spectrum of an ordinary red Neon lamp is shown below. The weak orange peaks are clearly visible. Furthermore the ultra small green peaks can also be seen.