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## Wavelength calibration of a monochromator system

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A new system for measurement of spectral power responsivity of detectors, utilising a monochromator system, was implemented at NMISA and characterised. The monochromator system includes sources of optical radiation, input optics, order sorting filters, a scanning double monochromator, diffraction gratings and output optics. As part of the characterisation, wavelength calibrations were performed in the wavelength regions of 200 nm to 400 nm and 600 nm to 1 100 nm. This was done by measuring the relevant spectral lines of wavelength standards selected from the NIST Atomic Spectra Database, and applying corrections for ambient conditions using the Engineering Metrology Toolbox of NIST. The monochromator steps corresponding to the spectral peaks measured were determined using the steep-side method. A linear fit of the spectral peaks versus the corresponding monochromator steps provided the wavelength calibration equations. These were then used when scanning the wavelength regions with the monochromator software. Uncertainty of measurement analyses were performed for each of the wavelength calibrations to determine the uncertainty associated with the wavelength position of the monochromator and its influence on the spectral power responsivity of a detector.

### Apply to be considered for a student ; award (Yes / No)?

Yes

### Level for award;(Hons, MSc, PhD, N/A)?

MSc

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