

A URANIUM ATLAS IN ASCII FORMAT, 20000 – 27000 cm⁻¹

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This work was motivated by difficulties encountered while trying to calibrate laser excitation spectra, taken in short (1 cm⁻¹) scans around 438 nm, by matching optogalvanic transitions from a Uranium-Argon hollow cathode lamp to peaks listed in a widely-circulated ‘informal report’ on the Uranium spectrum (11000 –25900 cm⁻¹) from Los Alamos^a. Short pieces of excitation spectra often fell between secure calibration lines, because many of the weaker features had been excluded from the printed linelist. To remedy this, we have re-recorded emission from a commercial Uranium hollow-cathode lamp 19800 – 27400 cm⁻¹ on a Fourier transform spectrometer, at an instrumental resolution of at 0.04 cm⁻¹. The wavenumber scale was fine-tuned to match earlier reference data^{abc} to within 0.003 cm⁻¹. This spectrum (together with its peak list) is proposed in ascii format^d as a possible aid to calibration of laser excitation spectra in the blue, violet and near UV. It extends the spectrum reported by Sarmiento and co-workers^b that focused on calibration of astronomical spectrographs in the near IR and visible.

^aAn atlas of uranium emission intensities in a hollow cathode discharge; Palmer, Keller & Engleman, Los Alamos report LA 8251-MS, (1980)

^bComparing the emission spectra of U and Th hollow cathode lamps, and a new U line list; Sarmiento *et al.*, A & A, 618, A118, (2018)

^cUranium and iodine standards measured by means of Fourier-transform spectroscopy; Gerstenkorn, *et al.*, A & A, 58, 255-66, (1977)

^dA uranium atlas, from 365 to 505 nm; Ross *et al.* J Mol Spectrosc , 369, 111270, (2020)