

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

New Measurement of Singly Ionized Selenium Spectra by High Resolution Fourier Transform and Grating Spectroscopy NOMAN HALA, Ohio State University, Columbus, Ohio, USA, G. NAVE, A. KRAMIDA, National Institute of Standards and Technology, Gaithersburg, USA, T. AHMAD, Aligarh Muslim University, Aligarh, India, S. NAHAR, A. PRADHAN, Ohio State University, Columbus, Ohio, USA — We report new measurements of singly ionised selenium, an element of the iron group detected in nearly twice as many planetary nebulae as any other trans-iron element. We use the NIST 2 m UV/Vis/IR and FT700 UV/Vis Fourier transform spectrometers over the wavelength range of $2000 \text{ \AA} - 2.5 \mu\text{m}$, supplemented in the lower wavelength region $300\text{-}2400 \text{ \AA}$ with grating spectra taken on a 3-m normal incidence vacuum spectrograph. The analysis of Se II is being extended, covering the wide spectral region from UV to IR. From our investigation, we found serious inconsistency and incompleteness in the previously published results, where several levels were reported without any designation. The analysis is being revised and extended with the help of semiempirical quasi-relativistic Hartree-Fock calculations, starting with the $4s^24p^3$ - [$4s^24p^2(4d+5d+5s+6s)+4s4p^4$] transition array. Out of fifty-two previously reported levels, we rejected thirteen and found several new level values. With the new measurements, we expect to observe transitions between $4s^24p^2(4d+5s)$ and $4s^24p^2(5p+4f)$, lying in the visible and IR region. A complete interpretation of the level system of both parities will be assisted by least squares fitted parametric calculations. In all, we have already classified about 450 observed lines involving 89 energy levels.

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Date submitted: 30 Jan 2015

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