

OSCILLATOR STRENGTHS AND PREDISSOCIATION RATES FOR RYDBERG COMPLEXES IN $^{12}\text{C}^{16}\text{O}$ BETWEEN 92.9 AND 93.4 NM

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We are conducting experiments on the DESIRS beam-line at the SOLEIL Synchrotron to acquire the necessary data on oscillator strengths and predissociation rates for modeling CO photochemistry in astronomical environments. A VUV Fourier Transform Spectrometer provides a resolving power of about 350,000, allowing us to discern individual lines in electronic transitions. Here we focus on results for six overlapping bands seen in spectra of $^{12}\text{C}^{16}\text{O}$ and compare them with earlier determinations. Absorption from the ground electronic level, $X^1\Sigma^+ v'' = 0$, to the upper levels $4p\pi(2)$, $\text{II}^1\Pi$, $4p\sigma(2)$, $5p\pi(0)$, $5p\sigma(0)$, and $\text{I}^1\Pi$ was analyzed. Our results are the first to provide data on each band. The spectra also reveal a continuum feature that was modeled, but its identification is not known at the present time.