

NEW ACCURATE WAVENUMBERS OF H^{35}Cl^+ AND H^{37}Cl^+ ROVIBRATIONAL TRANSITIONS IN THE $v = 0 - 1$ BAND OF THE $^2\Pi$ STATE.

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HCl^+ is a key intermediate in the interstellar chemistry of chlorine. It has been recently identified in space from *Herschel's* spectra^a and it has also been detected in the laboratory through its optical emission^b, infrared^c and mm-wave spectra^d. Now that *Herschel* is decommissioned, further astrophysical studies on this radical ion will likely rely on ground-based observations in the mid-infrared. We have used a difference frequency laser spectrometer coupled to a hollow cathode discharge to measure the absorption spectrum of H^{35}Cl^+ and H^{37}Cl^+ in the $v = 0 - 1$ band of the $^2\Pi$ state with Doppler limited resolution. The accuracy of the individual measurements (~ 10 MHz (3σ)) relies on a solid state wavemeter referenced to an iodine-stabilized Ar^+ laser. The new data are being fit using the CALPGM software from JPL, and the current status will be presented.

^aM. De Luca et al., *Astrophys. J. Lett.* **751**, L37 (2012)

^bW. D. Sheasley and C. W. Mathews, *J. Mol. Spectrosc.* **47**, 420 (1973)

^cP. B. Davies, P. A. Hamilton, B. A. Johnson, *Mol. Phys.* **57**, 217 (1986)

^dH. Gupta, B. J. Drouin, and J. C. Pearson, *Astrophys. J. Lett.* **751**, L37 (2012)