THE NEAR INFRARED TRANSITION OF COPPER CHLORIDE BY INTRACAVITY LASER SPECTROSCOPY

J.J. O'BRIEN, *Department of Chemistry, University of Missouri, St. Louis, MO 63121-4499*; L.C. O'BRIEN, *Department of Chemistry, Southern Illinois University, Edwardsville, IL 62026-1652*.

The near infrared electronic transition of CuCl occurring in the region of 13,500 cm^{-1}has been recorded by intracavity laser absorption spectroscopy. The CuCl molecules were produced in a copper hollow cathode operating with an applied potential of 700 V, using 1.4 torr argon and a trace amount of carbon tetrachloride.

The near infrared transition previously was recorded by Balfour and Ram,[a] and it was assigned as emission from a low-lying $^3\Sigma^+$ state to the $X^1\Sigma^+$ state. Recently, this transition has received considerable attention because of high level *ab initio* calculations [b] that question whether this transition involves the $X^1\Sigma^+$ ground state.

[a] W.J. Balfour and R.S. Ram, *J. Phys. B* **17**, L19 (1984).

[b] C. Sousa, W.A. de Jong, R. Broer and W.C. Nieuwpoort, *Mol. Phys.* **92**, 677 (1997).