

THE VISIBLE AND ULTRAVIOLET SPECTRUM OF SILVER CHLORIDE

LEAH O'BRIEN, TENEIL KELLERMAN, and AMANDA LAMBETH, *Department of Chemistry, Southern Illinois University, Edwardsville, IL 62026-1652.*

The visible and ultraviolet electronic transitions of AgCl were recorded at high resolution with the Fourier transform spectrometer associated with the McMath-Pierce Solar Telescope at Kitt Peak, AZ. The ultraviolet system was previously observed and assigned as a $0^+ - X^1\Sigma^+$ transition,^a while the visible transition is a new, violet-degraded electronic system near $25,500\text{ cm}^{-1}$. A similar, violet-degraded visible transition in AgF was recently observed,^b and high-level *ab initio* calculations^c on AgF have predicted that the excited state of this transition is a $^3\Sigma^+_1$ state. For the ultraviolet transition, the excited AgCl molecules were produced in a microwave discharge operated with 70 W absorbed power and at a total pressure of approximately 2 torr. For the visible system, a King-type carbon tube furnace was charged with AgCl powder and heated to 1900 C to produce the excited AgCl molecules. The molecular constants for the states involved will be presented.

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^bH. Wang and J.L. Gole, *J. Mol. Spectrosc.* **161**, (1993) 28-43.

^cA. Ramirez-Solis and J. Schamps, *J. Chem. Phys.* **102**, (1995) 4482-4490.