FOURIER TRANSFORM EMISSION SPECTROSCOPY OF THE VISIBLE BANDS OF GOLD CHLORIDE

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The visible bands of gold chloride, AuCl, have been recorded at high resolution (0.05 cm$^{-1}$) in the 17000 - 20000 cm$^{-1}$ region. The spectrum was recorded in emission using the Fourier transform spectrometer associated with the McMath-Pierce Solar Telescope at Kitt Peak. Excited gold chloride molecules were produced in a microwave discharge with AuCl$_3$ powder in the discharge tube using 4 torr of helium seeded with 3 ppm chlorine. Four vibronic bands of the $A \rightarrow X^1\Sigma^+$ transition were observed. Four vibronic bands [(0,0), (1,0), (2,0) and (0,1)] of the $B^0 \rightarrow X^1\Sigma^+$ were observed. Spectroscopic parameters for the $X_A$, $A_b$ and $B$ states will be presented.