ANALYSIS OF THE 0_0^0 AND 3_1^0 BANDS IN THE $\tilde{A}$ - $\tilde{X}$ TRANSITION OF YC_2

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The 0_0^0 and 3_1^0 band systems of the $\tilde{A}\,^2A_1 \leftarrow \tilde{X}\,^2A_1$ transition of YC_2 were recorded in high resolution using laser-induced fluorescence on molecules produced in a molecular beam. Asymetry splittings in the $\tilde{X}\,^2A_1$ state were measured by recording the optical spectrum in the presence of a weak static electric field [a]. Several pure rotational transitions were also recorded in the (0,0,0) $\tilde{X}\,^2A_1$ vibronic state using pump/probe microwave optical double resonance spectroscopy. The three sets of parameters were combined to produce fine and hyperfine parameters for the $\tilde{A}$ and $\tilde{X}$ states. Rotational constants and structural parameters were determined for both electronic states by fitting the combined data sets to an effective hamiltonian for a rigid molecule. An interpretation of the fine structure parameters will be given.

[a] R. Bousquet and T. C. Steimle, J. Chem. Phys. **114**, 1306-1310 (2001)