

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. Asymmetry 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.

^aR. Bousquet and T. C. Steimle, *J. Chem. Phys.* **114**, 1306-1310 (2001)