ANALYSIS OF THE HYPERFINE STRUCTURE IN THE [20.6]5 - X4 TRANSITION OF COBALT MONFLUORIDE.

A. G. ADAM and WEI SHA, *Department of Chemistry, University of New Brunswick, Fredericton, NB, Canada E3B 6E2*.

The high resolution visible laser spectrum of the 484 nm band system of cobalt monofluoride has been obtained. The molecules were produced by reaction of laser ablated cobalt atoms with 1% SF_6 seeded in He under supersonic jet conditions. The 0-0 and 1-0 bands of the system were probed with a Coherent 699-29 cw ring dye laser giving experimental linewidths on the order of 200 MHz. The appearance of the spectrum at low resolution where a strong R-, and weaker Q-, and P-branches were observed is indicative of $\Delta\Lambda = \Delta\Omega = +1$. This and analysis of the first lines yields a value of omega=4 for the ground state, consistent with earlier work, and a value of omega=5 for the upper state. Comparison with calculations on CoH has allowed this transition to be assigned as the $[20.6]^3\Gamma_5$ - $X^3\Phi_4$ transition. The molecular constants derived from a nonlinear least squares fit to the data will be presented.