ROTATIONAL ANALYSIS OF THE $A^2\Pi - X^2\Sigma^+$ AND $B^2\Sigma^+ - X^2\Sigma^+$ TRANSITIONS OF YbBr USING LASER EXCITATION AND RESOLVED FLUORESCENCE

CAMERON S. DICKINSON and JOHN A. COXON, *Department of Chemistry, Dalhousie University, Halifax, NS, Canada B3H 4J3*; COLAN LINTON, *Department of Physics, University of New Brunswick, P.O. Box 4400, Fredericton, New Brunswick, Canada E3B 5A3*.

High-resolution laser excitation spectra have been recorded for the first time for YbBr. Data for the 0-0 and 1-0 bands of the $A^2\Pi - X^2\Sigma^+$ system and the 0-0, 1-0 and 1-1 bands of the $B^2\Sigma^+ - X^2\Sigma^+$ system were obtained using selective detection of fluorescence. The lowest vibrational levels of the $A^2\Pi_{3/2}$ and $B^2\Sigma^+$ states are shown to be separated by ≈ 400 cm^{-1}, and exhibit the characteristics of a mutually perturbing pair. Through observation of symmetry forbidden transitions in the $B^2\Sigma^+ - X^2\Sigma^+$ system, mixing of the A and B states is apparent. A resolved fluorescence study has also been undertaken by observing the 0-1, 0-2 and 0-3 bands in the $A^2\Pi_{1/2} - X^2\Sigma^+$ system. A least-squares merged fit of the estimated parameters from individual bands was performed to remove redundancies, the results of which will be presented.