ROTATIONAL ANALYSIS OF THE $\tilde{C}^2A_1$ - $\tilde{X}^2A_1$ TRANSITION OF $SrNH_2$

P. M. SHERIDAN, *Department of Chemistry, University of Waterloo, 200 University Ave. West, Waterloo, ON, N2L 3G1 Canada*; M. J. DICK, *Department of Physics, University of Waterloo, 200 University Ave. West, Waterloo, ON, N2L 3G1 Canada*; J. G. WANG and P. F. BERNATH, *Department of Chemistry, University of Waterloo, 200 University Ave. West, Waterloo, ON, N2L 3G1 Canada*.

A high-resolution spectrum of the $\tilde{C}^2A_1$ - $\tilde{X}^2A_1$ transition of $SrNH_2$ has been recorded using a jet cooled/laser ablation spectrometer. $SrNH_2$ was created by the reaction of UV-ablated Sr atoms with a 15% mixture of NH_3 in argon and detected using laser excitation spectroscopy. Low J transitions arising from both the $K_a' = 0 \leftarrow K_a'' = 0$ and $K_a' = 1 \leftarrow K_a'' = 1$ sub-bands have been observed. Rotational and fine structure parameters have been determined for both states. The spin-rotation constants for the $\tilde{C}^2A_1$ state have been calculated using the pure precession model and will be compared to those determined in the fit. In addition, these spectroscopic constants will be compared to those of the previously measured $\tilde{A}^2B_1$ and $\tilde{B}^2B_2$ states of $SrNH_2$. Structural parameters for all states will also be discussed.