ROTATIONAL ANALYSIS OF THE $C\ ^2\Pi$ STATE OF SrF BY OPTICAL-OPTICAL DOUBLE RESONANCE SPECTROSCOPY

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

The $C\ ^2\Pi$ (v = 0) state of SrF has been investigated at high resolution using the technique of optical-optical double resonance spectroscopy. SrF was synthesized in a Broida-type oven by the reaction of Sr metal vapor with $SF_6$. The band heads of the $A\ ^2\Pi - X\ ^2\Sigma^+$ transition were first excited using a linear dye laser ($\sim$1 cm$^{-1}$ bandwidth). A Ti:Sapphire ring laser was then utilized to record high-resolution laser excitation spectra of the $C\ ^2\Pi_{1/2} - A\ ^2\Pi_{1/2}$ and $C\ ^2\Pi_{3/2} - A\ ^2\Pi_{3/2}$ transitions. A rotational analysis of these transitions is in progress. In addition, an investigation of the $D\ ^2\Sigma^+$ state is currently underway and preliminary observations will be presented.