HIGH-RESOLUTION LASER SPECTROSCOPY OF THE $A^1\Sigma^+ - X^1\Sigma^+$ TRANSITION OF CaS

TODD C. MELVILLE and JOHN A. COXON, *Department of Chemistry, Dalhousie University, Halifax, NS, Canada B3H 4J3*.

High-resolution laser excitation spectroscopy has been employed for the first time to examine the $A^1\Sigma^+ - X^1\Sigma^+$ system of CaS. Gaseous CaS was produced in a Broida-type oven by the reaction of calcium metal vapor with OCS. A Coherent 699- 29 ring dye laser operating in single-frequency mode was used to investigate the rotational structure of the $A - X$ transition. The present work extends the lower resolution work of Blues and Barrow [a] on the same system to higher vibrational levels and has allowed the indentification of several level crossings that occur in the $A^1\Sigma^+$ state. The deperturbation analysis of the $A - X$ transition will be discussed.

[a] Trans. Faraday Soc. 65, 646 (1969)