

THE $A^1\Sigma^+ - X^1\Sigma^+$ AND $A'^1\Pi - X^1\Sigma^+$ CHEMILUMINESCENCE SPECTRA OF SrO FROM A FOURIER TRANSFORM SPECTROMETER

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The $A^1\Sigma^+ - X^1\Sigma^+$ and $A'^1\Pi - X^1\Sigma^+$ spectra of SrO were observed in the range of 3,900 to 13,600 cm^{-1} at a resolution of about 0.03 cm^{-1} . The SrO chemiluminescence was produced in a Broida-type oven from the $\text{Sr} + \text{N}_2\text{O}$ reaction and detected with a Fourier transform spectrometer. A total of 75 bands from ^{88}SrO , ^{87}SrO and ^{86}SrO were measured for the A-X transition, and vibrational levels of the ground state were analyzed up to $v'' = 12$. Over 10,000 rovibrational lines from the A-X transition were fitted to obtain significantly improved spectral constants of the ground state. Strong perturbations were observed in the A state. The A' -X infrared emission spectrum was also analyzed. A set of Dunham parameters for the A' state was obtained through the fitting of the data.