

## THE LOW LYING SINGLET STATES OF ZIRCONIUM OXIDE.

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The spectra of ZrO molecules are prominent in the near infrared and optical spectra of S-type stars. S-type stars have approximately equal carbon and oxygen abundances. We have analyzed the  $B^1\Pi - X^1\Sigma^+$ ,  $C^1\Sigma^+ - X^1\Sigma^+$ , and  $B^1\Pi - A^1\Delta$  electronic transitions of ZrO. The emission spectrum was collected from a high temperature (2405 K) carbon furnace at the National Solar Observatory (Kitt Peak). The rotational analysis was performed using the PGOPHER program to provide spectroscopic constants. These constants were used to calculate line lists with intensities obtained from *ab initio* transition dipole moments.