

## FOURIER TRANSFORM EMISSION SPECTROSCOPY OF THE $A^2\Pi - X^2\Sigma^+$ TRANSITION OF ZINC HYDRIDE

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Zinc hydride is one of the simplest molecules, and considerable spectroscopic and theoretical works have been carried out. The two excited states,  $A^2\Pi$  and  $B^2\Sigma^+$  of ZnH are known to be mixed together, like for the BeH and MgH molecules. Surprisingly, reliable spectroscopic information is available for the excited states of ZnD but not ZnH. The most recent report on the spectroscopy of the A-X and B-X system of ZnH is from 1939<sup>a</sup>. It has been suggested that ZnH is present in the sun and the star 19 Piscium<sup>b</sup>, but there are large uncertainties in the old line positions.

In this study, we recorded Fourier transform emission spectra of the ZnH A-X system. The molecule was generated by a microwave discharge of ZnCl<sub>2</sub> or Zn vapor in Ar buffer gas with a trace of H<sub>2</sub>. We determined new molecular constants for the lower vibrational levels of the A state.

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<sup>a</sup>G. Stenvinkel, E. Svensson, and E. Olsson, *Ark. Math. Astro. Fys.*, 26, 1 (1939).

<sup>b</sup>R. S. Wojslaw and B. F. Peery Jr., *Astrophys. J. Suppl. Ser.*, 31, 75 (1976).