ROTATIONAL PREDISSOCIATION IN THE GROUND $X\,^2\Sigma^+$ STATE OF ZnH

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It is known that ZnH has a relatively shallow potential curve in its ground state ($D_e \sim 7,660\ cm^{-1}$), however, accurate spectral information on the higher vibrational levels in the $X\,^2\Sigma^+$ state is not available. In this study, we recorded Fourier transform spectra in 400-500 nm region using a DC discharge inside a tube furnace. A deep blue emission was observed over the granulated zinc heated to 770 K in a slow flow of Ar ($\sim$ 5 Torr) with a trace of H_2. So far we identified $A\,^2\Pi - X\,^2\Sigma^+$ transitions up to $v' = 2$ and $v'' = 4$, as well as the $B\,^2\Sigma^+ - X\,^2\Sigma^+$ 0-4 band. In this $B - X$ band, lines are found to be diffuse around $N'' = 21$ and completely dissapear for higher-N''. Based on the potential curve in the ground state, we found that this happens because of rotational predissociation. We also discuss a deperturbation of the $A\,^2\Pi$ and $B\,^2\Sigma^+$ states.