FOURIER TRANSFORM EMISSION SPECTROSCOPY OF THE B$'$ $^2\Sigma^+$ - X $^2\Sigma^+$ TRANSITIONS OF $MgH$ AND $MgD$

A. SHAYESTEH, K. TERESZCHUK, and P. F. BERNATH, *Department of Chemistry, University of Waterloo, Waterloo, ON, N2L 3G1, Canada..*

Emission spectra of MgH and MgD have been investigated in the 8000 - 22000 cm$^{-1}$ region using a high resolution Fourier transform spectrometer. These molecules were generated in a furnace-discharge source, at about 900 K and 333 mA discharge current with magnesium and a mixture of $Ar$ and $H_2$ or $D_2$ gases. The recorded spectra contain not only the well-known A $^2\Pi$ - X $^2\Sigma^+$ transitions, but also the B$'$ $^2\Sigma^+$ - X $^2\Sigma^+$ transitions of MgH and MgD. We obtained data for v$''$ = 2 to 9 for the ground state of MgH and v$''$ = 3 to 13 for MgD. Analyses of the data is in progress, and will lead to improved potential energy curves for the X $^2\Sigma^+$ states of MgH and MgD. These results will be presented at the time of symposium.