HIGH RESOLUTION LASER SPECTROSCOPY OF HOLMIUM MONOSULPHIDE

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Laser induced fluorescence spectra of Holmium Monosulphide have been obtained betwen 670 and 750 nm. Dispersed fluorescence spectra show transitions from a common upper state to the lowest 2 vibrational levels of each of 3 different low lying electronic states. By comparison with HoO, the ground state has been assigned as $\Omega = 8.5$. The branch intensity distributions in the dispersed fluorescence spectra showed that $\Omega = 7.5$ for both the excited state and the other two low lying states which lie approximately $259\mathrm{cm}^{-1}$and $981\mathrm{cm}^{-1}$above the ground state. High resolution excitation spectra were obtained for all 6 bands, four of which showed well resolved hyperfine structure. The results of the analysis of the vibrational, rotational and hyperfine structure will be presented and discussed in terms of the electron configuration of the molecule