FOURIER TRANSFORM NEAR INFRARED EMISSION SPECTROSCOPY OF GAS-PHASE YbO

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The emission spectrum of gas-phase YbO has been investigated using a Fourier transform spectrometer. Chemiluminescence was observed from excited YbO molecules produced in a Broida-type oven by the reaction of ytterbium metal vapour with N_2O. A total of 8 red-degraded bands in the range 9800 - 11300 cm^{-1} were recorded at a resolution of 0.04 cm^{-1}. Because of the multiple isotopomers present in the spectra, only 3 bands were rotationally analyzed. Perturbations were identified in two of these bands and all 3 transitions were found to terminate at the $X\ ^1\ \Sigma\ ^+$ ground electronic state. The electronic configurations that give rise to the observed states are investigated and molecular parameters for all of the analyzed bands will be presented.

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