

FOURIER TRANSFORM EMISSION SPECTROSCOPY OF A NEW ${}^3\Phi - a^3\Delta$ SYSTEM OF ScH AND ScD

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The emission spectra of ScH and ScD have been investigated at high resolution in the 3000-14500 cm^{-1} region. The molecules were excited in a scandium hollow cathode lamp by discharging a mixture of He and H_2 or D_2 , and the spectra were recorded using a Fourier transform spectrometer. The new bands of ScH and ScD with high wavenumber R heads near 11620 cm^{-1} and 11630 cm^{-1} , respectively, have been assigned as the 0-0 bands of the ${}^3\Phi - a^3\Delta$ transition. The rotational structure of each sub-band consists of only the R and Q branches. A rotational analysis of these bands have been obtained and the spectroscopic constants have been extracted. This transition is analogous to the ${}^3\Phi - a^3\Delta$ transition of YH [Ram and Bernath, *J. Chem. Phys.*, 101, 9283 (1994)] and LaH [Ram and Bernath, *J. Chem. Phys.*, 104, 6444 (1996)].