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

R.S. RAM, *Department of Chemistry, University of Arizona, Tucson, AZ 85721*; P. BERNATH, *Department of Chemistry, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1*.

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)].