HIGH RESOLUTION LASER SPECTROSCOPY OF HAFNIUM MONOFLUORIDE.

A. G. ADAM and SCOTT HOPKINS, *Department of Chemistry, University of New Brunswick, Fredericton, NB, Canada E3B 6E2*.

High resolution laser spectra of HfF have been acquired in the visible region of the spectrum. The molecules were produced via laser ablation of a hafnium target rod, followed by reaction with SF_6 in a pulsed supersonic jet. Several electronic transitions have been observed and analysed between 17,000 and 23,000 cm^{-1}, all yielding an Ω''=3/2 ground state consistent with the $^2\Delta_{3/2}$ ground state of HfCl [a]. Curiously, two electronic transitions at 19,707 cm^{-1} and 19,977 cm^{-1}, which have both been assigned as [Ω'=1/2]-X[Ω''=3/2], exhibit $^2\Sigma$ - $^2\Pi$ structure. Work on this molecule is continuing and the results will be discussed.

[a] R. S. Ram, A. G. Adam, A. Tsouli, J. Levin and P. F. Bernath, J. Mol. Spectrosc. 202, 116(2000).