VIBRATIONAL SPECTROSCOPY OF Rg•SH COMPLEXES

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The rotationally resolved spectra of the Rg•SH (Rg= Ne, Ar, Kr) complexes has been presented previously and is now fairly well understood. At the same time there has been considerable uncertainty in the absolute vibrational quantum numbers of these bands. In this talk we will present results of both high (∼250 MHz) and moderate resolution (∼0.1 cm^{-1}) laser induced fluorescence spectra. Using the isotopic shifts of ^{34}S-^{32}S and ^{86}Kr-^{84}Kr, we will make arguments for the absolute vibrational numbering in the various progressions of these complexes.

With this numbering we can then determine ω_e and $\omega_e x_e$ for the progressions and therefore also determine approximate D_0' and D_0'' values for these complexes assuming a Morse potential.