HYDRATED HCl COMPLEXES, $(HCl)_m(H_2O)_n$, IN HELIUM NANODROPLETS: OH STRETCHING MODES

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Infrared laser spectroscopy has been used to characterize the solvation of HCl with small number of water molecules in helium nanodroplets. Complexes of $(HCl)_m(H_2O)_n$ with m = 1 – 3 and n = 1 – 3 have been identified in the free OH stretching and bonded OH spectral range of 3000 – 3900 cm^{-1}. The assignment of the infrared vibrational bands of the clusters is aided by pick-up pressure dependence experiments and ab initio calculations.