

HYDRATED HCl COMPLEXES, $(\text{HCl})_m(\text{H}_2\text{O})_n$, 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 $(\text{HCl})_m(\text{H}_2\text{O})_n$ with $m = 1 - 3$ and $n = 1 - 3$ have been identified in the free OH stretching and bonded OH spectral range of $3000 - 3900 \text{ cm}^{-1}$. The assignment of the infrared vibrational bands of the clusters is aided by pick-up pressure dependence experiments and ab initio calculations.