HIGH-RESOLUTION INFRARED SPECTROSCOPY OF HCl DIMER IN SOLID PARAHYDROGEN

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The infrared spectroscopy and dynamics of HCl hydrogen bonded clusters in solid parahydrogen were investigated using high-resolution FTIR spectroscopic methods. This paper will focus on the HCl dimer species. Transitions have been observed and assigned to both the "donor" and "acceptor" HCl stretching modes of $(HCl)_2$. The spectroscopy indicates that end-over-end rotation of the dimer is quenched in solid parahydrogen, but that low frequency motions involving K rotation and possibly tunneling are still occurring. More detailed analysis is underway and will be presented at the meeting.