

INFRARED INTENSITIES AND SPECTRA OF WATER CLUSTERS

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Water clusters $(\text{H}_2\text{O})_n$ in the range $n = 1 - 30$ have been studied in helium droplets. Spectral bands of clusters with $n = 1 - 6$ are observed and infrared intensities of water dimers, trimers and tetramers relative to that of ν_3 band of H_2O molecule have been determined. We found non-additive enhancement of the IR intensity in water clusters, which can be used as a probe for cooperative effects. Gradual transformation of the spectrum from a relatively narrow band of small clusters to a broad spectrum, characteristic for a bulk ice, is observed.