ヘリウム液滴を用いた水クラスターの赤外強度測定

[illegible] ○ [illegible]
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Infrared intensity and spectra of water clusters in helium droplets : N_2–H_2O, O_2–H_2O, and Ar–H_2O

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The infrared spectra of N_2–H_2O, O_2–H_2O and Ar–H_2O complexes in He droplets were measured in the range of the fundamental stretching vibrational bands of water molecules. The infrared intensity of the anti-symmetric stretching bands in these complexes were found to be slightly increased compared to that in single H_2O molecules, but the increase was only ~ 30 % in the case of N_2–H_2O complex. The spectra show that H_2O in O_2–H_2O and Ar–H_2O rotates nearly freely, while no indication of H_2O internal rotation was observed in N_2–H_2O spectra. The conformation of the N_2–H_2O complexes was estimated from their rotational constants. The difference between the intermolecular potential of O_2–H_2O and that of Ar–H_2O will be discussed based on the analysis of the rotational structures of H_2O in the spectra.

[illegible] N_2 [illegible] O_2 [illegible] Ar [illegible]

[illegible] “gentle” [illegible] N_2–H_2O [illegible]

[illegible] Ar–H_2O [illegible] N_2–H_2O [illegible] O_2–H_2O [illegible] N_2–H_2O [illegible] Ar–H_2O [illegible] O_2–H_2O [illegible]