INFRARED SPECTROSCOPY OF LARGE-SIZED NEUTRAL AND PROTONATED METHANOL CLUSTERS

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The OH stretch region of infrared spectra of size-selected $(CH_3OH)_n$ and H^+ $(CH_3OH)_n$ clusters were measured in the size range of n=10-50. While the neutral clusters show the similar spectral features in all the observed size range, the spectral features of the protonated clusters largely depend on the size and finally converge to those of the neutral clusters at n=40. The decomposition of the hydrogen-bonded OH stretch band demonstrates that the contribution of the 3-coordinated sites is less than 10 percent of the 2-coordinated sites. This means that the hydrogen bond network of the methanol clusters is basically a single chain and branching of the chain is scarce.