

INFRARED LASER SPECTROSCOPY OF METHANE-PARAHYDROGEN CLUSTER IN HELIUM DROPLETS

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The clusters of methane with para-hydrogen molecules ($\text{CH}_4-(p\text{-H}_2)_n$, $n=1\sim 30$) were formed in He droplets and studied via laser depletion spectroscopy. The rotationally resolved ν_3 transition of the cluster was observed with changing the number of hydrogen molecules. Large spectral change was seen around $n=12$ and 30, which suggests the completion of the first and second H_2 solvation shells of the CH_4 molecule. The aggregate state of the H_2 cluster is discussed.