STUDY OF LARGE MOLECULAR CLUSTERS IN He DROPLETS

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The rotationally resolved spectra of the ν_3 vibrational mode of $(CH_4)_n$ ($n = 1 - 2 \times 10^3$) clusters in He droplets have been measured. With increasing of the cluster size the effective rotational constant of the CH_4 molecules in the cluster decreases and for $n > 500$ the rotational structure collapses. This behavior suggests gradual quenching of the internal rotation of the CH_4 molecules upon increase of the cluster size.