DIRECT INFRARED ABSORPTION SPECTROSCOPY OF BENZENE CLUSTERS

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In order to find out the global minimum structure of the benzene dimer we engaged in a series of low (0.5 cm-1) and high (0.015 cm-1) resolution direct absorption infrared measurements of benzene clusters in the 3.3 micron region of the fundamental C-H stretch. The benzene clusters are produced in a continuous supersonic expansion generated by a 24-cm long slit nozzle using helium, argon or neon as carrier gases [a]. Low resolution spectra show a red shift in the CH stretch spectral region which is found to increase with increase in cluster size. When using argon, high resolution spectrum reveals new weak absorption lines between the strongest monomer lines, attributed to the Ar-Benzene complexe. Currently we are involved in recording the high resolution spectrum of the benzene dimer using helium as a carrier gas.

[a] R. Georges, A. Bonnamy, M Decroi and J Boissoles *Molecular Physics 100,1551, (2002)*