

π - π and CH- π DISPERSION INTERACTIONS IN THE N₂-C₅H₅N AND CH₄-C₅H₅N DIMERS

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We will discuss the results of our high resolution spectroscopic studies of the dinitrogen-pyridine (N₂-C₅H₅N) and methane-pyridine (CH₄-C₅H₅N) dimers. The two dimers represent simple binary van der Waals systems that are good prototypes for studying the weak π - π and CH- π bonds involving polar and non-polar aromatic molecules. The pyridine molecule is of great interest because many of its derivatives are prevalently found in plants and microorganisms. Our preliminary results show that the dimers adopt T-shaped configurations. The N₂ lies perpendicularly to the aromatic plane with its center of mass close to the *c*-inertial axis of the free pyridine molecule; similarly, the CH₄ molecule in CH₄-C₅H₅N sits above the aromatic plane. These are the only configurations presently observed for both dimers in our experiments. The talk will focus on the rotational spectra and structural properties of these dimers.

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