JET-FTIR-SPECTROSCOPY OF PYRROLE CLUSTERS

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Jet-FTIR spectroscopy is a powerful technique to investigate small hydrogen bonded clusters[a]. The filet-jet-spectrometer combines a $600 \times 0.2\,\mathrm{mm}^2$ slit nozzle with a commercial FTIR-instrument[b].
Pyrrole is a five-membered heterocyclic aromat with hydrogen bond donor (N–H) and acceptor (π-system) functionalities. Weak N–H$\cdots\pi$ hydrogen bonds[c] play an important role in biological systems. Therefore, weakly bound aggregates of pyrrole and some of its methylated derivatives have been systematically characterised by the filet-jet-spectroscopy.
In pyrrole-2-carboxaldehyde, the additional carbonyl group offers a better hydrogen bond acceptor site and leads to the formation of more conventional N–H$\cdots$O hydrogen bonds. Its dimer has therefore been investigated as a small model system for hydrogen bonding in peptides.

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[b] C. A. Rice, N. Borho and M. A. Suhm *Z. Phys. Chem.* **219**, 2005, 379–388.
[c] A. Gómez-Zavagalia and R. Fausto *J. Phys. Chem. A* **108**, 2004, 6953–6967.