

Proton Migration in Hydrogen Bonded Donor-Acceptor Complexes

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Intermolecular hydrogen bonding plays an important role in forming anisotropic interactions in condensed systems, and subtle competition between H-bond acceptors/donors can lead to dramatically different solid-state structures. There is significant national and international research effort directed at the study of hydrogen bonding in the solid state. Much of this work has focussed on the *static* structures adopted by molecular hydrogen-bonded systems, but the importance of hydrogen atom migration through hydrogen bonds between molecules has also been identified. It is becoming increasingly apparent that the positions of the protons involved in hydrogen bonds are highly susceptible not only to chemical environment, but also to the effects of temperature and pressure.

A collaborative project has been set up with the aim of preparing molecular adducts in which a proton migrates between the donor and acceptor species as temperature and/or pressure is varied. In this poster we will describe our experimental techniques [1] and present results for some of our variable temperature studies of the 1:1 salt formed between 2-iodoaniline and picric acid [2].

[1] Parkin A., Harte S.M., Goeta A.E., Wilson C.C., *New J. Chem.*, 2004. [2] Tanaka M., Matsui H., Mizoguchi J., Kashino S., *Bull. Chem. Soc. Jpn*, 1994, **67**, 1572-1579.

Keywords: hydrogen bond, intermolecular interactions, variable temperature