HYDROGEN BOND NETWORKS IN THE SOLVATION OF THE SIMPLEST SUGAR

CRISTOBAL PEREZ, AMANDA STEBER, MELANIE SCHNELL, *FS-SMP, Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany*.

The vast majority of biological processes takes place in aqueous environments. The biomolecule's biological function is therefore strongly influenced by its interactions with the solvating water molecules. Quantifying these interactions at a molecular level, when the organic molecule of interest is only surrounded by a few water molecules, serves as a valuable route to better understand the particular molecular behavior. In this talk, we will present our results on the stepwise hydration of Glycoaldehyde (Gly) from broadband rotational spectroscopy. Taking advantage of the high resolution and sensitivity of this technique, the experimental structures of (Gly)-$(H_2O)_n$ (n=1-5) clusters have been determined and will be presented. An unambiguous identification of these clusters has been achieved from the spectra of the parent species and $H_2{}^{18}O$ single substitution of the water units within the clusters. These experiments allowed for an accurate determination of the oxygen-atom framework in the cluster. The experimental hydrogen bond networks will be discussed and compared to those of bare water clusters showing that certain topologies are recurrent.