CONTROLLED FORMATION AND VIBRATIONAL CHARACTERIZATION OF LARGE SOLVATED IONIC CLUSTERS IN CRYOGENIC ION TRAPS

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An experimental approach for the formation of solvated ionic clusters and their vibrational spectroscopy will be presented. This recently developed apparatus combines an electrospray ionization source, two temperature controlled cryogenic ion traps and a time-of-flight infrared photofragmentation spectrometer, to allow for a universal and controlled formation and characterization of solvent clusters around ionic core as well as product of ion-molecule reaction.

Recent results on the spectroscopy of such solvated ions, will be presented and discussed. In particular, this talk will present the structural evolution of glycylglycine as a function of stepwise solvation, and show how the presence of just a few water can modify the geometry of this model peptide. I will also present results solvation of ion that do not form hydrogen bond or strongly interactions with the solvent.