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STRUCTURE OF MICRO-SOLVATED NEGATIVE IONS AS STUDIED BY ELECTRON PHOTODETACHMENT TIME-OF-FLIGHT MASS SPECTROMETRY

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Micro-solvation of negative ions can have a profound affect on molecular structure, and therefore reactivity. For example, does sequential solvation result in complete encapsulation of the ion core (as in the case of most cationic systems), or do solvent-solvent interactions result in the anion residing on or near the microdroplet surface? Similarly, does solvation result in the creation of an ion-dipole complex where the solvent acts essentially as a spectator surrounding the ion core, or are new anionic species generated?

Direct experimental evidence addressing these types of questions are only just beginning to appear in the literature. We have embarked on a program of study aimed at learning more about the structure and dynamics of micro-solvated anions by the use of photodetachment methodologies. Early results of our studies into the hydrated superoxide system, $O_2^{\cdot-}(H_2O)$, will be presented, as will an analysis of the complex chemistry apparent upon the hydration of NCN^- .