PROPERTIES OF SIZE SELECTED SODIUM DOPED SOLVENT CLUSTERS

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The properties of hydrogen bonded solvent clusters are investigated with a size selective molecular beam experiment. The doped solvent clusters were generated in a continuous supersonic pinhole expansion and were photoionized by a tunable dye laser system, follwed by mass analysis in a reflectron time-of-flight mass spectrometer.
Sodium doped ammonia clusters show a strong size dependence of the ionization potential (IP). It decreases with the size of the clusters[a]. The IPs of sodium doped water clusters $\mathrm{Na(H_2O)_n}$ only show a size dependent decrease for clusters up to n=4. For larger clusters a constant IP is found[b].
The IPs provide important information on the cluster structures. Currently, size selective properties of sodium doped methanol clusters are being investigated, to learn more about the structures of these clusters and the solvated electrons.

[a] C. Steinbach and U. Buck *J. Chem. Phys.* **122**, 2005, 134301.
[b] I. V. Hertel, C. Huglin, C. Nitsch and C. P. Schulz *Phys. Rev. Lett.* **67**, 1991, 1767-1770.