

Abstract Submitted
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Amino acid and water molecules adsorbed on water clusters in a beam¹ RAMIRO MORO, University of Southern California, ROMAN RABINOVITCH, VITALY KRESIN — Water clusters $(\text{H}_2\text{O})_n$ and $(\text{D}_2\text{O})_n$ ($n \leq 16$) are produced by supersonic expansion and pick up an additional heavy or light water molecule, respectively, or an amino acid molecule, while flying through a pick-up cell. The products are analyzed by electron bombardment ionization mass spectrometry. Ionization proceeds via well-known loss of an OH or OD group, but these have a strong predilection to come from the guest, rather than the host, molecule. e.g., even for large $(\text{D}_2\text{O})_n\text{H}_2\text{O}$ [or $(\text{H}_2\text{O})_n\text{D}_2\text{O}$], about 50% of the time the lost group is from the picked-up molecule. Similar ratios are found for amino acid guests. This suggests that proton exchange is suppressed, the host clusters are frozen into compact annealed shapes, and the adducts reside on the surface and present a dangling OH [or OD] bond where the ionization-induced hole prefers to localize dissociatively.

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