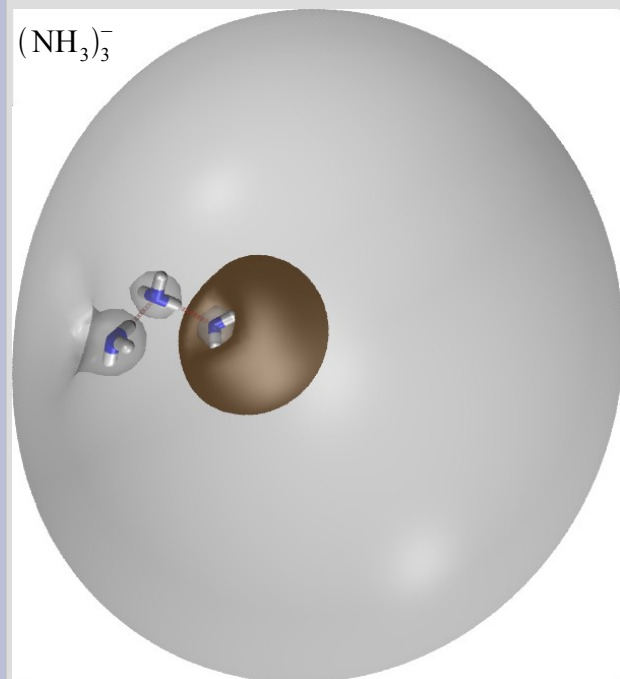


Excess electrons bound to atom and molecule clusters

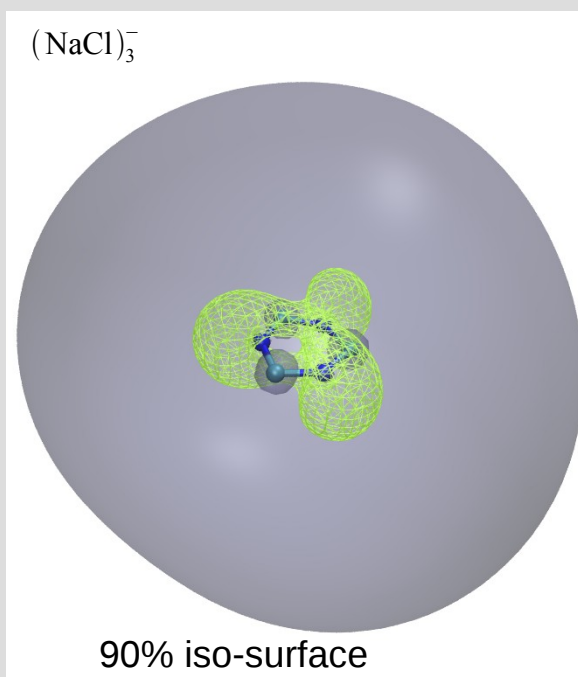
Thomas Sommerfeld, Southeastern Louisiana University



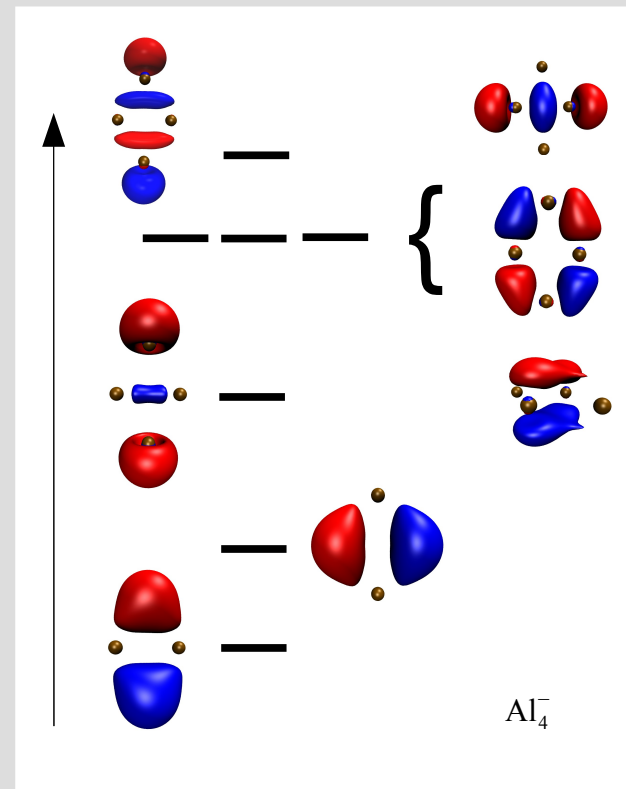
Ammonia molecules cannot bind an excess electron, but may team up to form a cluster that can. Still the binding energy is small, and the distribution of the excess electron dwarfs the cluster.

(Iso-surfaces enclosing 10% (orange) and 80% (gray) are shown.)

NaCl clusters have very polar bonds, but form nevertheless unpolar clusters that are barely able to bind an excess electron. The inner iso-surface (yellow mesh) shows that only a few percent of the density are localized close to the Na^+ ions.



90% iso-surface



Aluminum cluster anions show pronounced configuration mixing due to several quasi-degenerate orbitals in the HOMO/LUMO region making interpretation of photoelectron spectra a tough challenge.