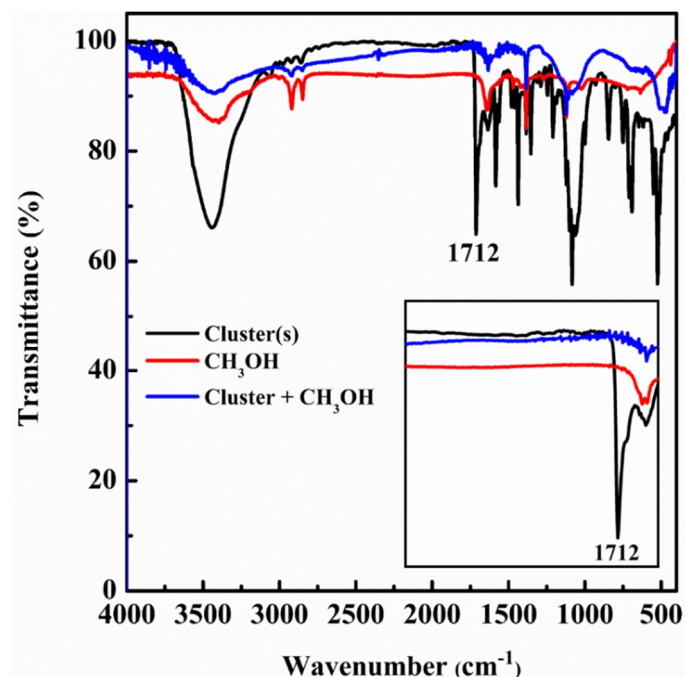


### Tuning Solvent Composition to Enhance the Stability of Metal Clusters in Mass Spectrometry

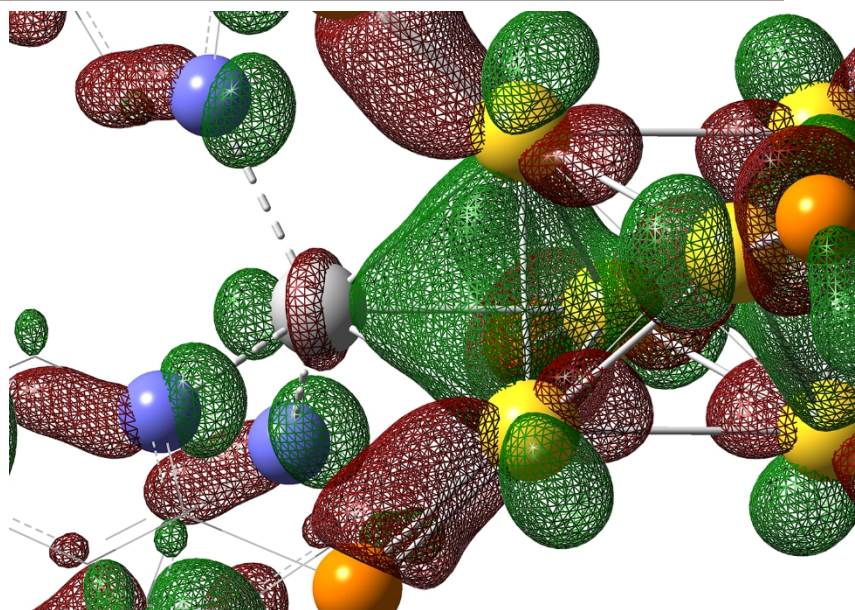
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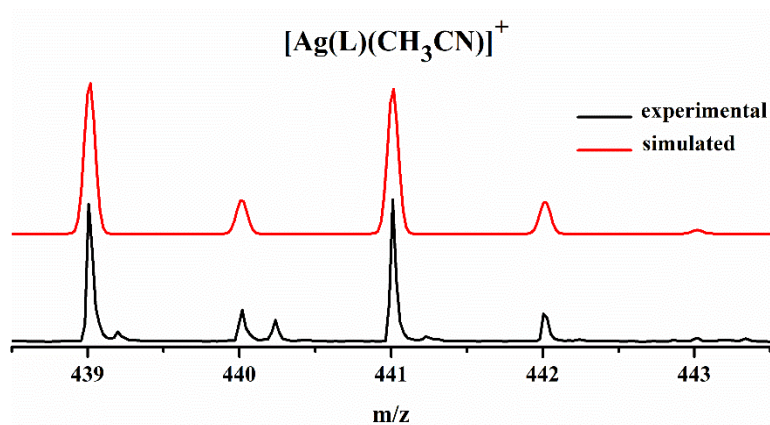
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**Figure S1.** IR spectra of the cluster powders (black trace), CH<sub>3</sub>OH (red trace), the cluster dissolved in CH<sub>3</sub>OH (blue trace), respectively. Inset: the enlarged details in the range of 2300 to 1600 cm<sup>-1</sup>. The C=O vibration peak at 1712 cm<sup>-1</sup> almost disappears when CH<sub>3</sub>OH is applied, implying the occurrence of hemiacetal reaction between the cluster ligands and solvent molecules.



**Figure S2.** Enlarged part of Figure 4c illustrating the bonding properties between Ag and Au.



**Figure S3.** The experimental (black trace) and simulated (red trace) isotopic patterns of the fragment ion peak  $[\text{Ag}(\text{L})(\text{CH}_3\text{CN})]^+$  obtained by HR-ESI-TOF-MS when the cluster dissolved in  $\text{CH}_3\text{CN}$ .