

## Supporting information

### Structure and Bonding in Au(I) Chloride Species: A Critical Examination of X-ray Absorption Spectroscopy (XAS) Data

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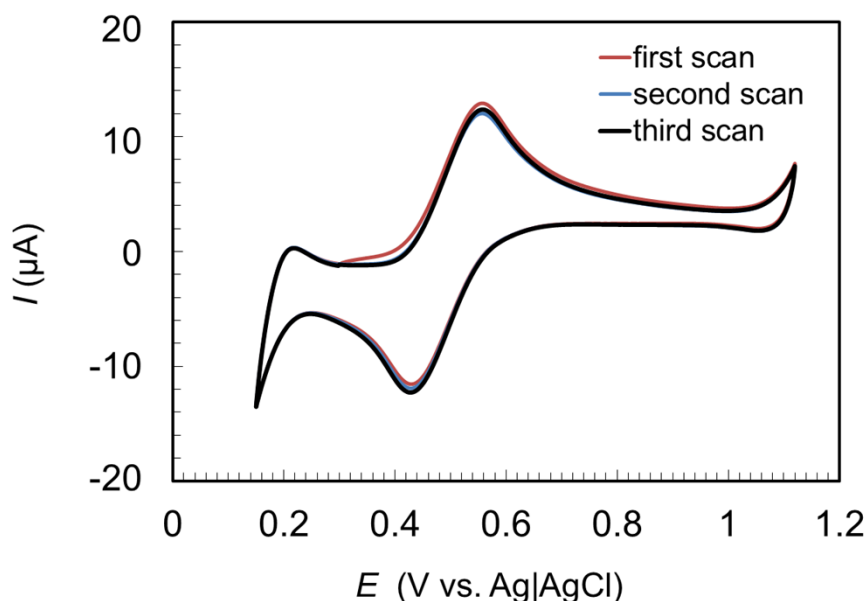


Figure S1. Cyclic voltammogram of  $[\text{AuCl}_2]^-$  transferring across a water/1,2-dichlorobenzene interface at a scanning rate of 10 mV/s.

Negligible changes in voltammogram after three scans shows that  $[\text{AuCl}_2]^-$  is stable in 1,2-dichlorobenzene. The electrochemical cell contains two immiscible phases: water and 1,2-dichlorobenzene. The aqueous phase containing 0.25 mM tetraoctylammonium- $[\text{AuCl}_2]$  and 0.01 M HCl; 1,2-dichlorobenzene phase contained 10 mM BTPPA+TFPB<sup>-</sup> (bis(triphenylphosphoranylidene) ammonium cation, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate anion). Experimental details are given in Uehara et al.<sup>1</sup>

1. A. Uehara, T. Hashimoto and R. A. W. Dryfe, *Electrochim. Acta*, 2014, **118**, 26-32.