

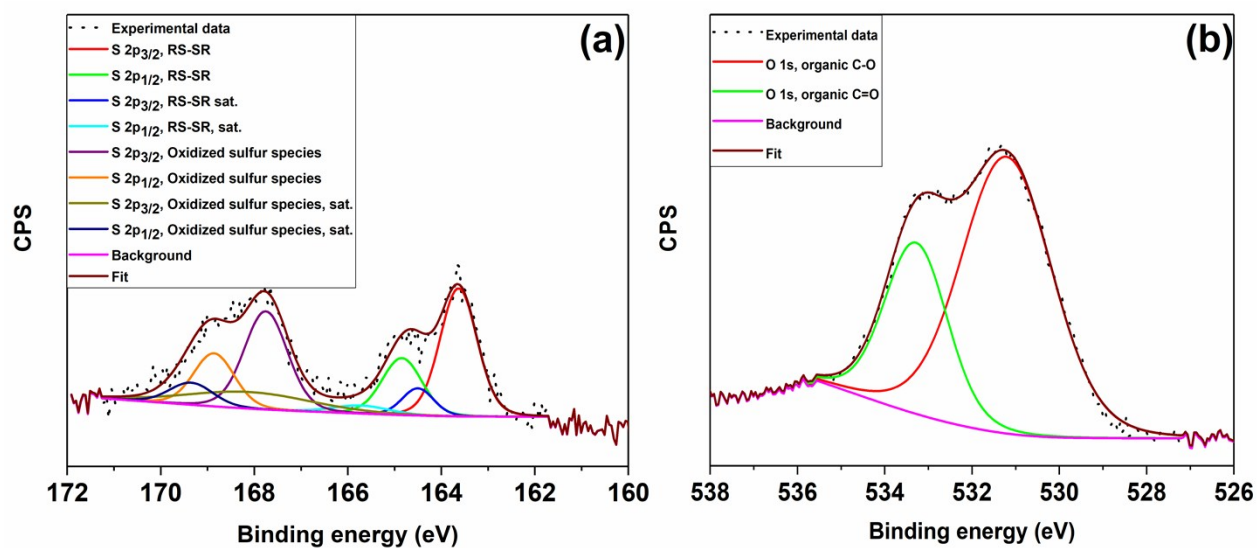
**Supplementary Information**

**Activation of Atomically Precise Silver Clusters on Carbon Supports for Styrene  
Oxidation Reactions**

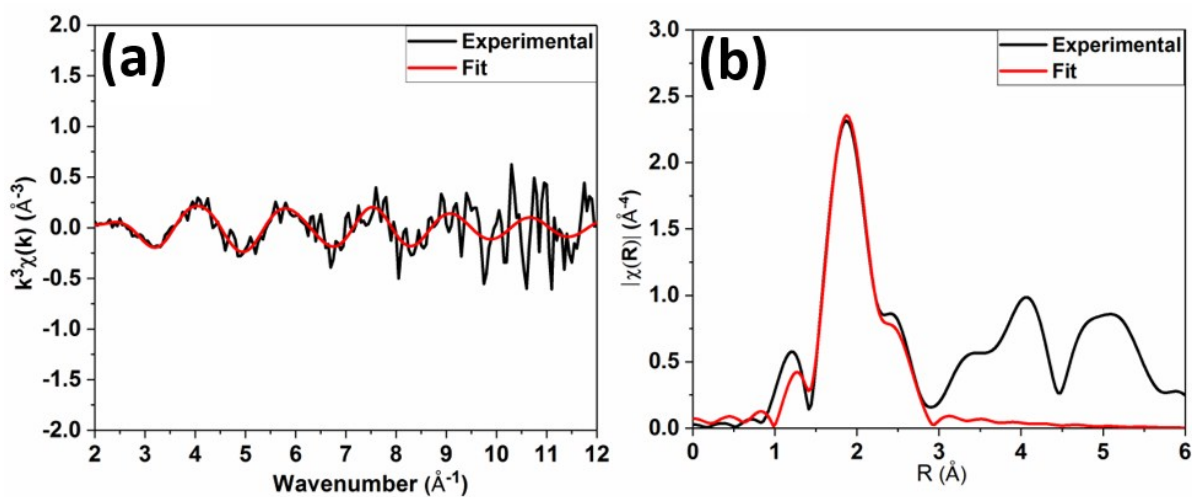
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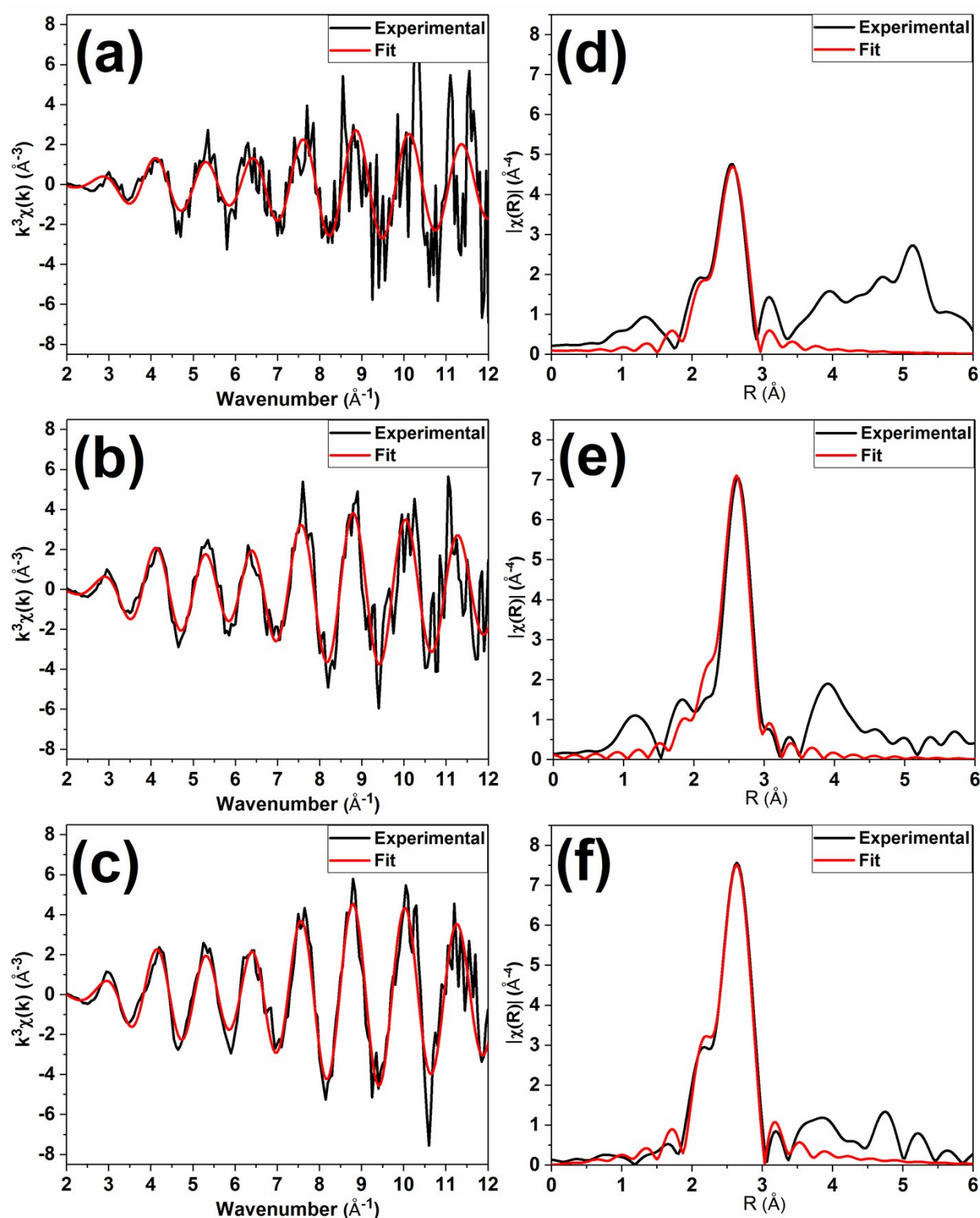
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**Fig. S1.** XPS spectra for activated  $\text{Ag}_{25}$ /carbon catalyst at 350 °C; (a) S 2p, and (b) O 1s spectra.



**Fig. S2.** EXAFS data in (a) k-space and (b) R-space, for as-prepared  $\text{Ag}_{25}$ /carbon catalyst.



**Fig. S3.** EXAFS data in k-space (a-c) and R-space (d-f) for activated  $\text{Ag}_{25}$ /carbon catalysts at 250 °C (a,d), 350 °C (b,e), and 450 °C (c,f) respectively.

**Table S1.** Stability of dispersed  $\text{Ag}_{25}\text{L}_{18}^-$  clusters as determined by the preservation of optical transitions in UV-Vis measurements.

Solvent property		Longevity (in days) at different storage temperature	
Solvent	Dielectric constant ( $\epsilon$ )	22-24 °C (ambient)	~4 °C (cold)
THF	7.58	2	24
DCM	8.93	4	31
DMF	36.7	6	120
DMSO	46.7	10	2*

\*Freezes up after 2 days.

**Table S2.** Multi-shell EXAFS fitting parameters for as-prepared  $\text{Ag}_{25}$ /carbon catalysts.

Bond type	CN	R/Å	$\sigma^2/\text{\AA}^2$	$E_0$ shift /eV	R-factor
Ag-S	1.08(5)	2.401(6)	0.00272(2)	-4.0(8)	0.0066
Ag-Ag	0.5(1)	2.81(2)	0.00900(3)	-4.0(8)	