



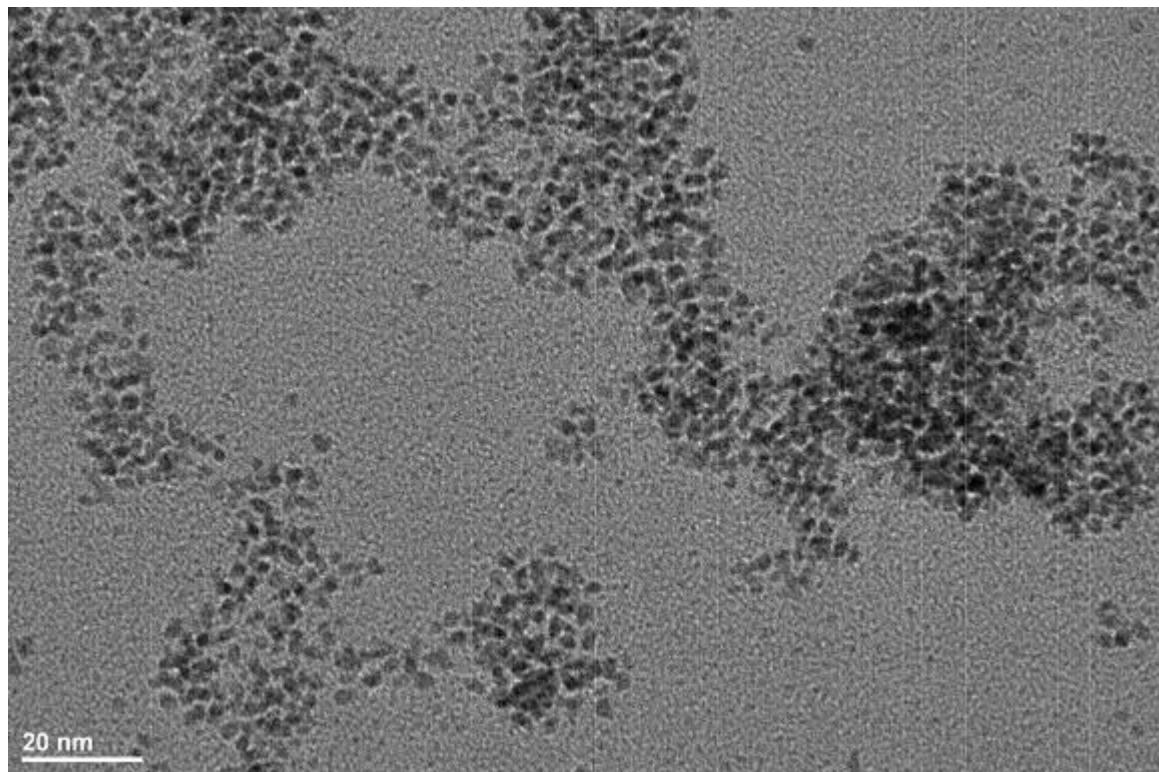
JOURNAL OF  
SYNCHROTRON  
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**Volume 24 (2017)**

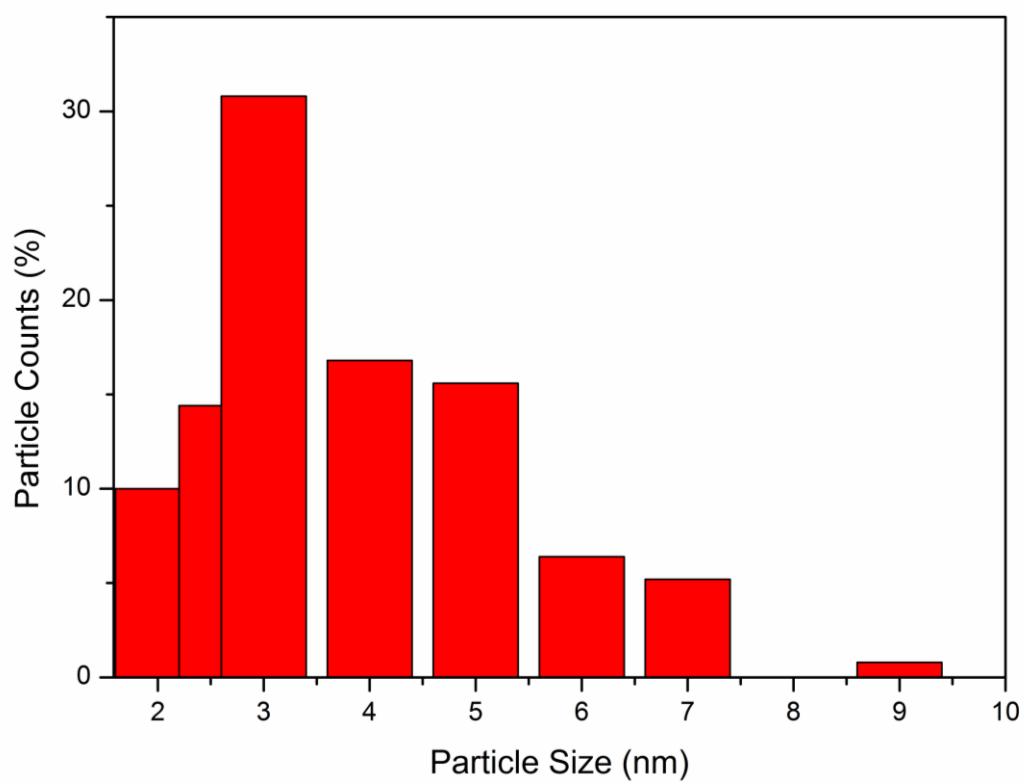
**Supporting information for article:**

**Insight into growth of Au@Pt bimetallic nanoparticles: an *in-situ* XAS study**

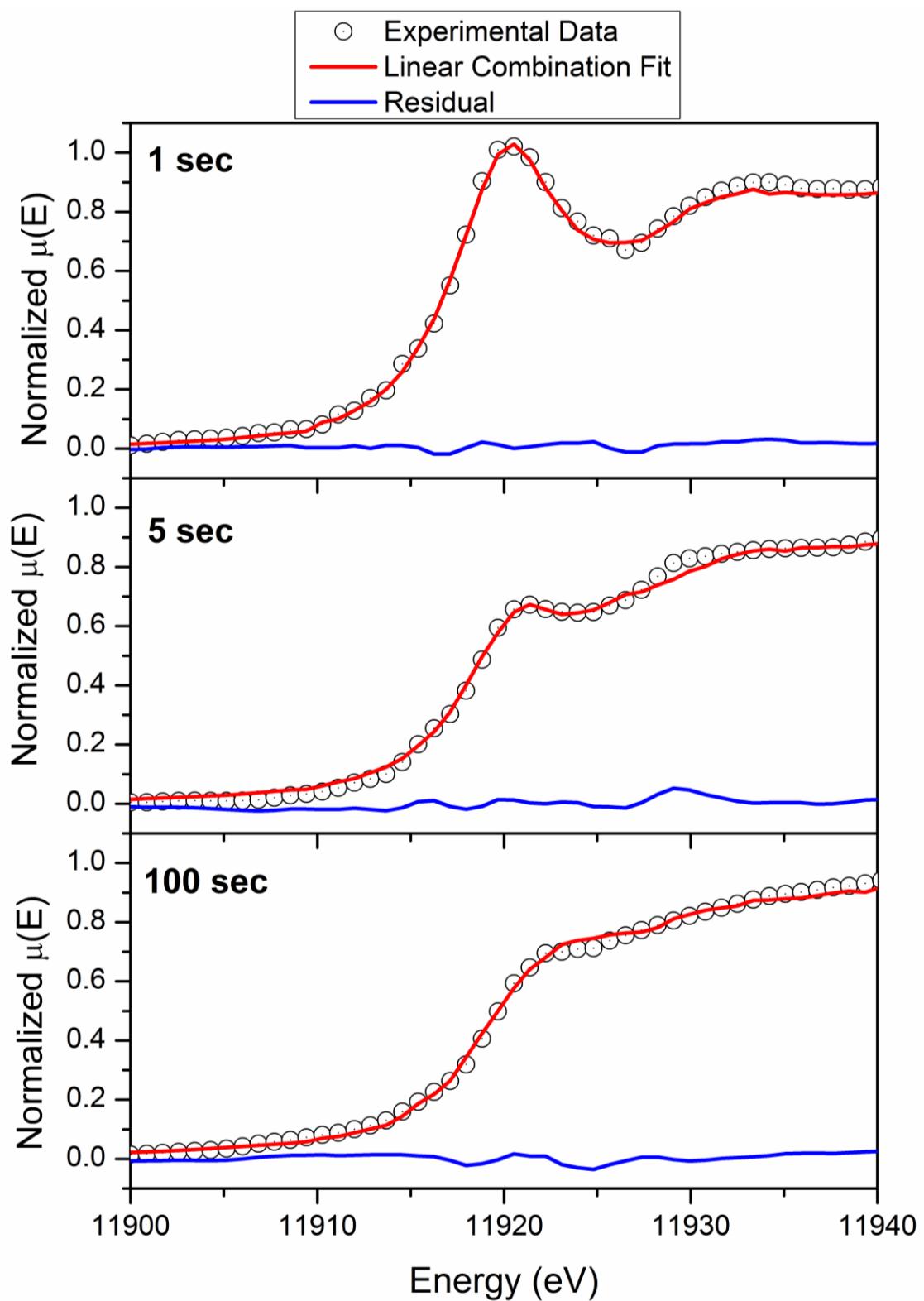
**Chandrani Nayak, D. Bhattacharyya, K. Bhattacharyya, A. K. Tripathi,  
R. D. Bapat, S. N. Jha and N. K. Sahoo**



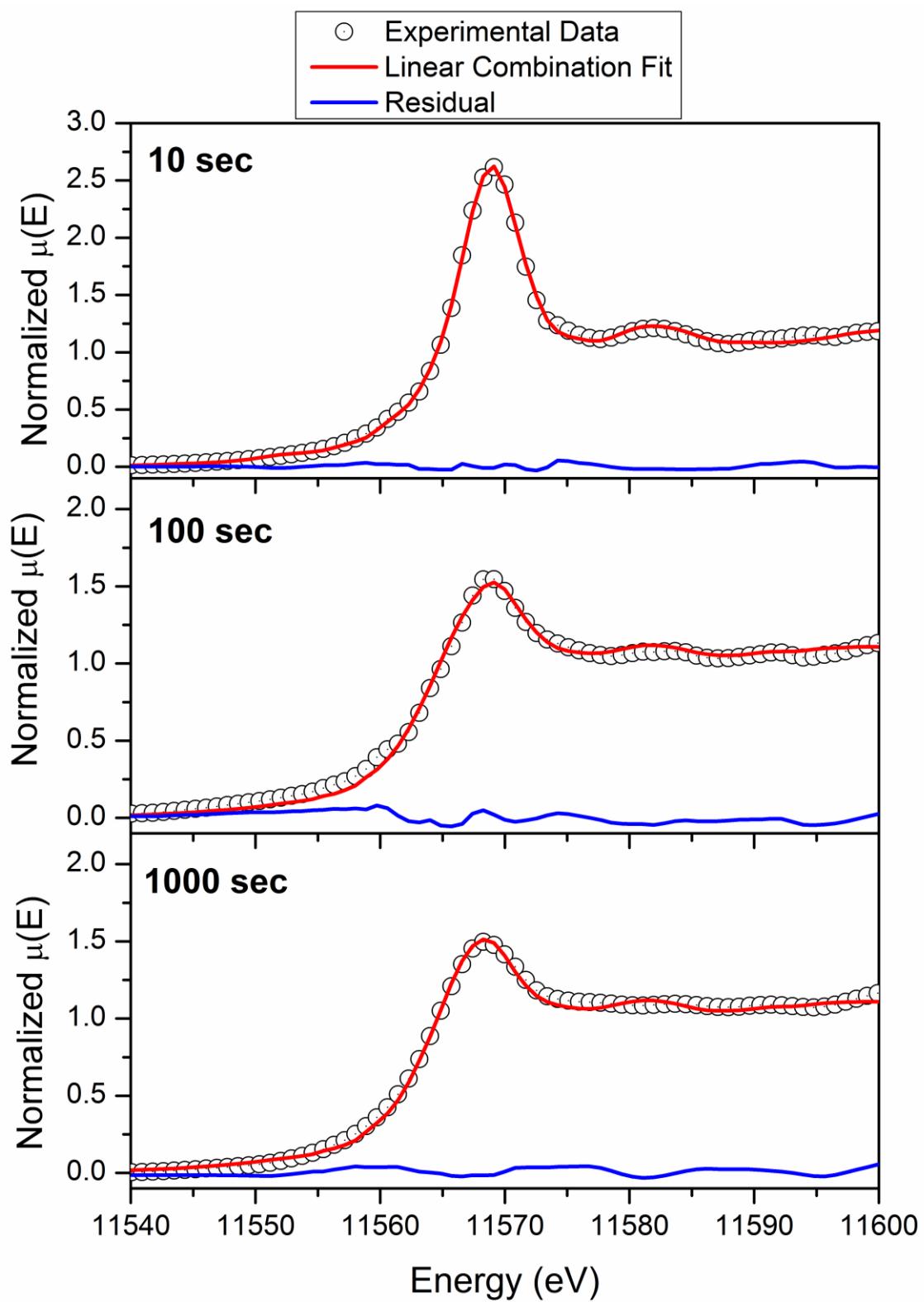
**Figure S1** TEM image of Au-Pt bimetallic particle



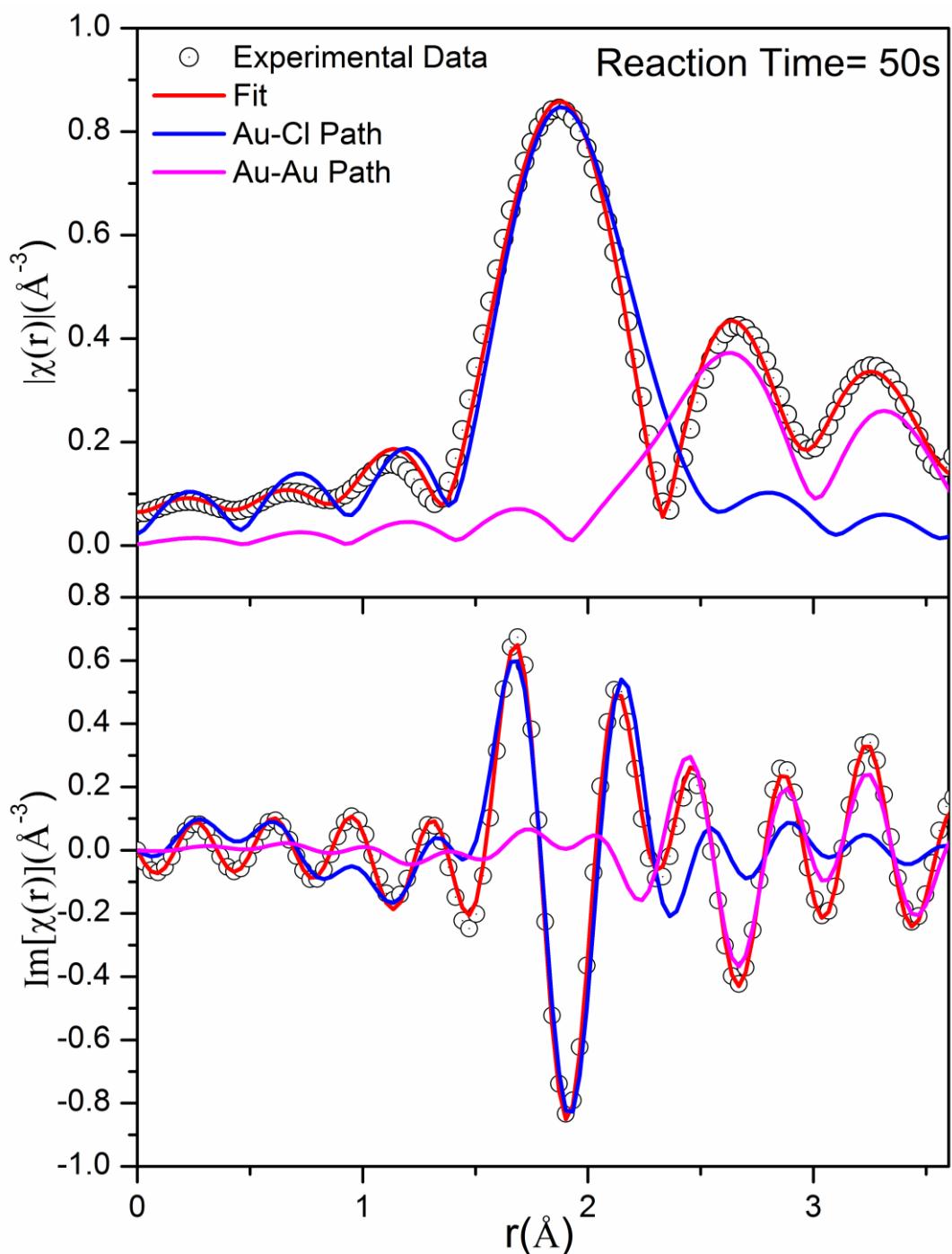
**Figure S2** Particle size histogram of Au-Pt bimetallic particles



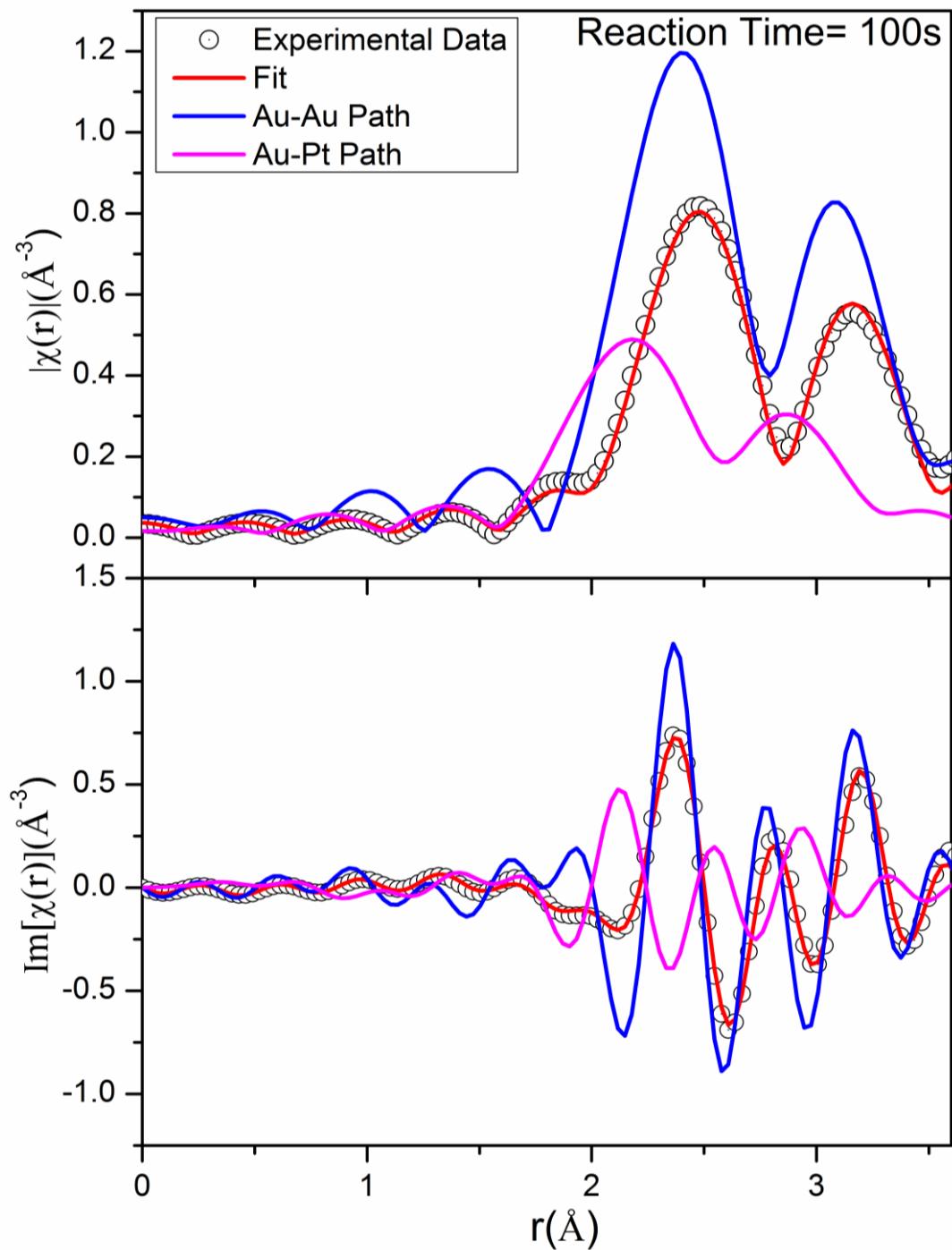
**Figure S3** XANES spectra at Au L3 edge taken at 1<sup>st</sup> sec, 5<sup>th</sup> sec. and 100<sup>th</sup> sec. alongwith their linear combination fit with the XANES spectra of HAuCl<sub>4</sub> and Au foil as standards of the +3 and +0 states. The residual of the fittings are also shown.



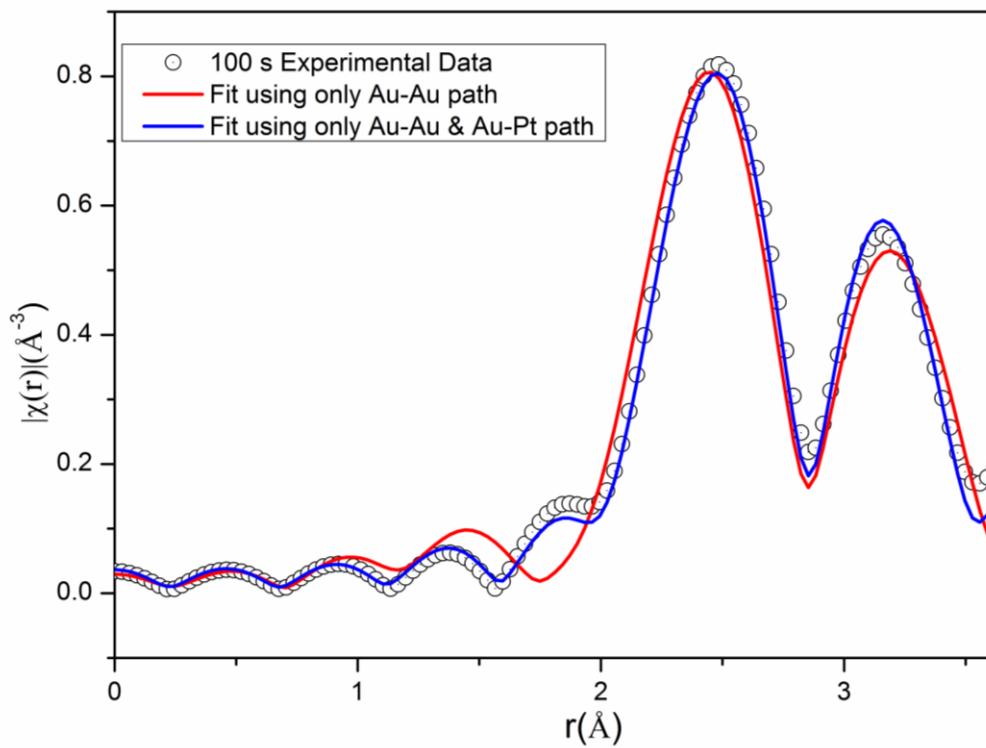
**Figure S4** XANES spectra at Pt L3 edge taken at 10<sup>th</sup> sec, 100<sup>th</sup> sec. and 1000<sup>th</sup> sec. alongwith their linear combination fit with the XANES spectra of H<sub>2</sub>PtCl<sub>6</sub> and Pt foil as standards of the +4 and +0 states. The residuals of the fitting are also shown. .



**Figure S5** Real and Imaginary parts of  $\chi(r)$  vs.  $r$  plots at Au L3 edge after 50 sec. of reaction alongwith theoretical contributions from Au-Cl and Au-Au paths.



**Figure S6** Real and Imaginary parts of  $\chi(r)$  vs.  $r$  plots at Au L3 edge after 100 sec. of reaction alongwith theoretical contributions from Au-Au and Au-Pt paths.



**Figure S7** Experimental  $\chi(r)$  vs.  $r$  plot at Au L3 edge after 100 sec. of reaction alongwith theoretical best fit plots obtained only with Au-Au path and with Au-Au and Au-Pt paths.

**Table S1** Au L3 edge EXAFS Fitting Results.

Time(s)	Au-Cl ( $\sigma^2 = 0.002 \text{ \AA}^2$ )		Au-Au ( $\sigma^2 = 0.004 \text{ \AA}^2$ )		Au-Pt ( $\sigma^2 = 0.004 \text{ \AA}^2$ )	
	r( $\text{\AA}$ )	N	r( $\text{\AA}$ )	N	r( $\text{\AA}$ )	N
0	2.35 $\pm$ 0.02	4.0 $\pm$ 0.1	-	-	-	-
1	2.34 $\pm$ 0.01	3.7 $\pm$ 0.3	-	-	-	-
2	2.36 $\pm$ 0.02	3.7 $\pm$ 0.5	-	-	-	-
3	2.36 $\pm$ 0.02	3.6 $\pm$ 0.4	-	-	-	-
4	2.34 $\pm$ 0.01	3.3 $\pm$ 0.6	-	-	-	-
5	2.33 $\pm$ 0.01	2.0 $\pm$ 0.4	-	-	-	-
6	2.31 $\pm$ 0.02	1.8 $\pm$ 0.1	-	-	-	-
10	2.33 $\pm$ 0.02	1.8 $\pm$ 0.3	-	-	-	-
15	2.31 $\pm$ 0.03	2.0 $\pm$ 0.3	-	-	-	-
20	2.31 $\pm$ 0.01	1.6 $\pm$ 0.2	-	-	-	-
30	2.31 $\pm$ 0.03	1.6 $\pm$ 0.2	-	-	-	-
40	2.35 $\pm$ 0.01	1.7 $\pm$ 0.2	2.95 $\pm$ 0.02	2.6 $\pm$ 0.6	-	-
50	2.34 $\pm$ 0.05	1.6 $\pm$ 0.4	3.01 $\pm$ 0.03	2.8 $\pm$ 0.4	-	-
60	2.36 $\pm$ 0.03	1.3 $\pm$ 0.4	3.03 $\pm$ 0.05	3.5 $\pm$ 0.4	-	-
70	2.35 $\pm$ 0.05	1.0 $\pm$ 0.6	2.97 $\pm$ 0.03	4.4 $\pm$ 0.2	-	-
80	2.34 $\pm$ 0.05	0.6 $\pm$ 0.5	2.99 $\pm$ 0.04	5.4 $\pm$ 0.3	-	-
90	-	-	2.93 $\pm$ 0.03	6.4 $\pm$ 0.3	-	-
95	-	-	2.90 $\pm$ 0.02	6.4 $\pm$ 0.5	2.67 $\pm$ 0.04	2.4 $\pm$ 0.5
100	-	-	2.90 $\pm$ 0.05	7.3 $\pm$ 0.3	2.67 $\pm$ 0.02	2.4 $\pm$ 0.2
110	-	-	2.89 $\pm$ 0.01	7.4 $\pm$ 0.4	2.65 $\pm$ 0.02	2.3 $\pm$ 0.4
120	-	-	2.88 $\pm$ 0.05	7.4 $\pm$ 0.6	2.63 $\pm$ 0.05	2.3 $\pm$ 0.5
140	-	-	2.90 $\pm$ 0.01	7.2 $\pm$ 0.7	2.66 $\pm$ 0.04	2.3 $\pm$ 0.7
150	-	-	2.91 $\pm$ 0.03	7.3 $\pm$ 0.5	2.63 $\pm$ 0.05	2.2 $\pm$ 0.4
180	-	-	2.88 $\pm$ 0.05	9.2 $\pm$ 0.2	2.66 $\pm$ 0.06	3.2 $\pm$ 0.2
200	-	-	2.88 $\pm$ 0.05	9.6 $\pm$ 0.6	2.63 $\pm$ 0.05	4.8 $\pm$ 0.2
230	-	-	2.88 $\pm$ 0.01	9.7 $\pm$ 0.7	2.65 $\pm$ 0.03	4.9 $\pm$ 0.7
280	-	-	2.86 $\pm$ 0.02	9.6 $\pm$ 0.6	2.67 $\pm$ 0.04	4.7 $\pm$ 0.7

**Table S2** Pt L3 edge EXAFS Fitting Results.

Time(s)	Pt-Cl ( $\sigma^2 = 0.002 \text{ \AA}^2$ )	
	r( $\text{\AA}$ )	N
0	2.23 $\pm$ 0.02	6 $\pm$ 0.4
10	2.22 $\pm$ 0.04	5.6 $\pm$ 0.5
30	2.25 $\pm$ 0.05	4.9 $\pm$ 0.3
50	2.25 $\pm$ 0.04	4.5 $\pm$ 0.5
80	2.23 $\pm$ 0.06	4.3 $\pm$ 0.6
90	2.24 $\pm$ 0.02	3.6 $\pm$ 0.5
100	2.23 $\pm$ 0.06	3.1 $\pm$ 0.7
200	2.23 $\pm$ 0.04	3.2 $\pm$ 0.5
300	2.23 $\pm$ 0.02	3.2 $\pm$ 0.6
500	2.22 $\pm$ 0.02	3.2 $\pm$ 0.6