

Supporting information

Highly-active Platinum Nanoparticles-encapsulated Alumina-doped Resorcinol-Formaldehyde Carbon Composites for Asymmetric Hydrogenation

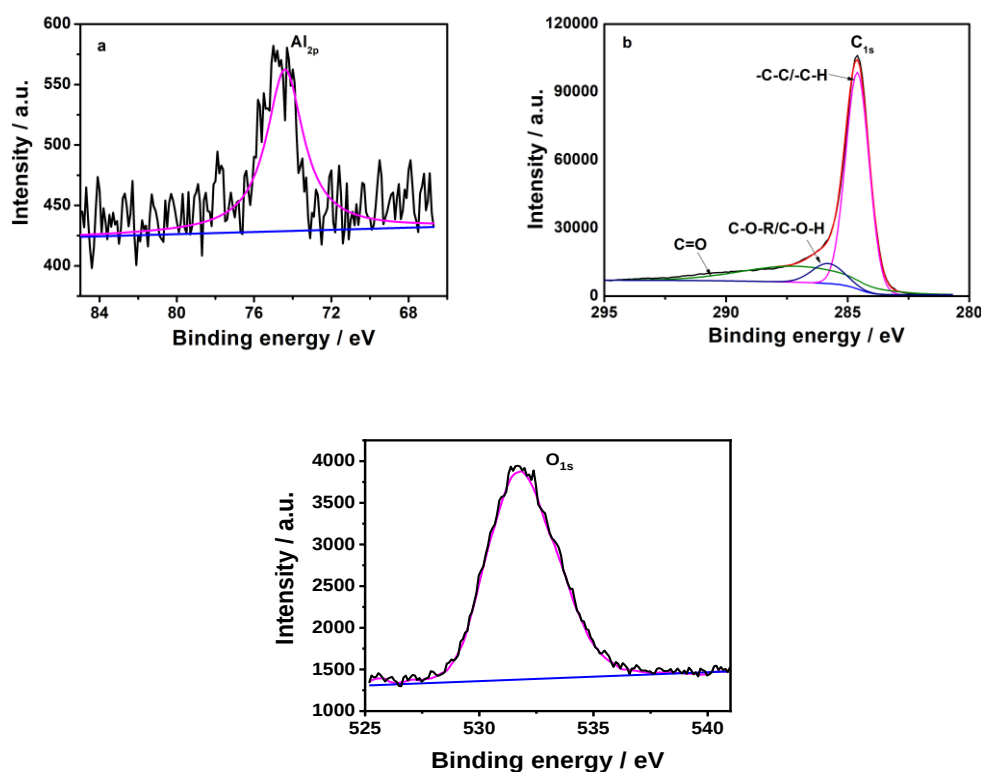


Figure S1. a) Al_{2p} , b) C_{1s} and c) O_{1s} XPS spectrum of Al-RFC-0.6

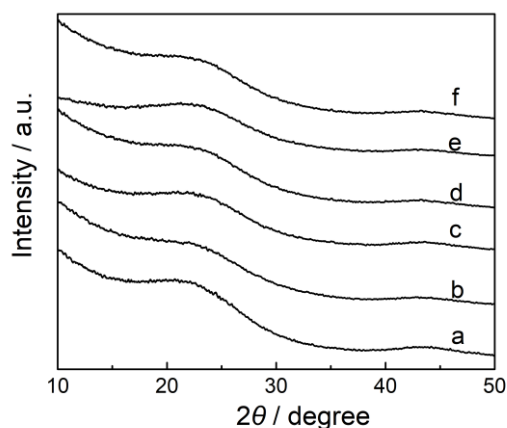


Figure S2. XRD patterns of a) RFC, b) Al@RFC-0.3, c) Al@RFC-0.6, d) Al@RFC-0.9, e) Al@RFC-1.2 and f) Al@RFC-1.8. All the samples were calcinated at 700°C.

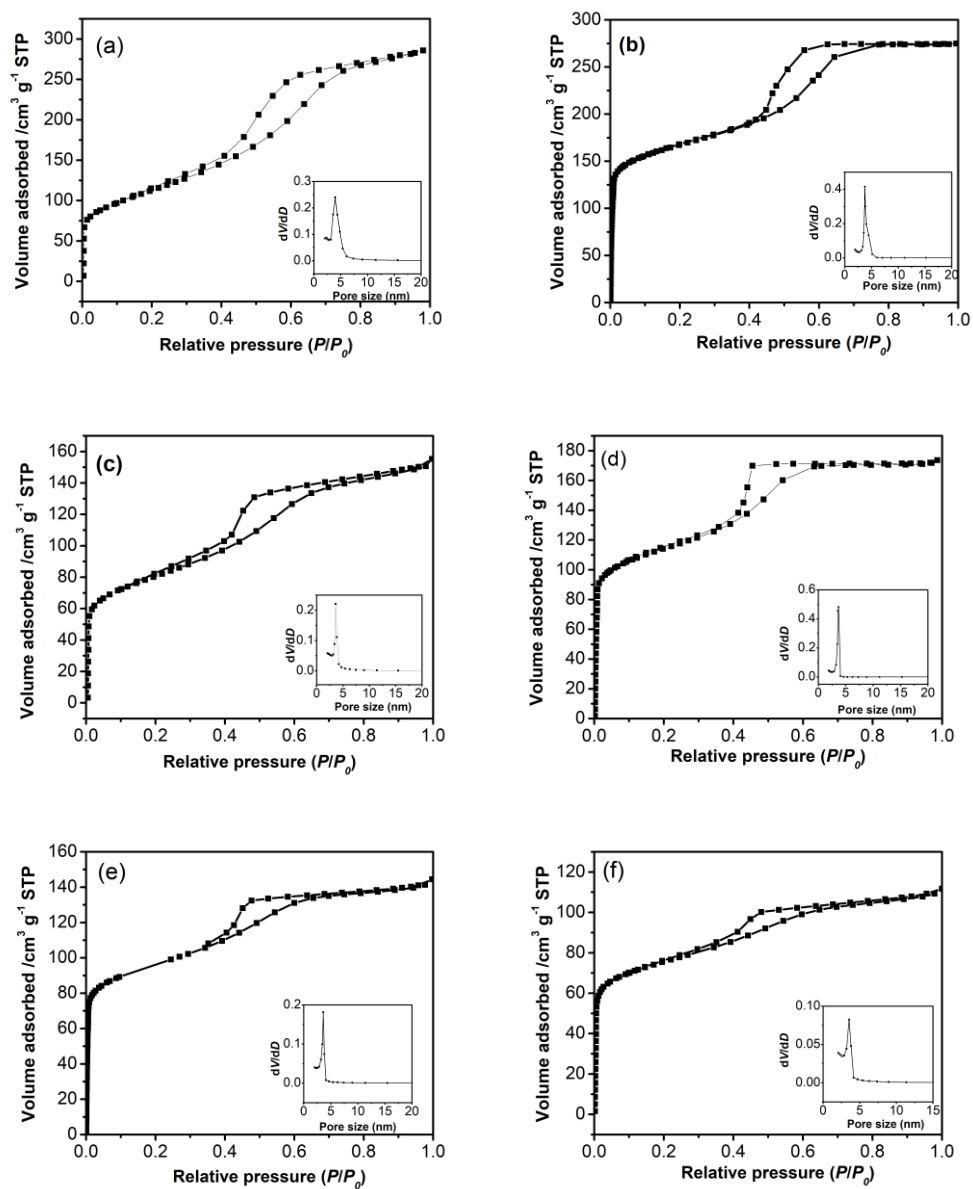


Figure S3. N_2 adsorption-desorption isotherms and pore size distribution curves of samples a) Al@RFC, b) Al@RFC-0.3, c) Al@RFC-0.6, d) Al@RFC-0.9, e) Al@RFC-1.2 and f) Al@RFC-1.8

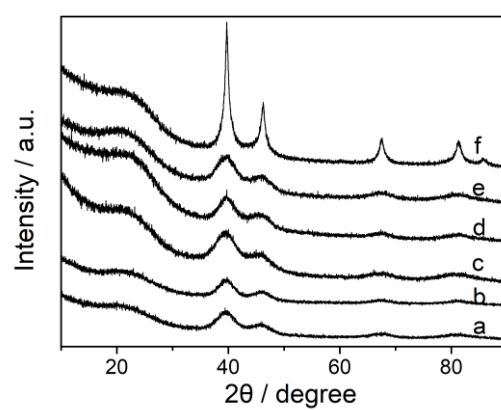


Figure S4. XRD patterns of a) Pt/RFC, b) Pt/Al@RFC-0.3, c) Pt/Al@RFC-0.6, d) Pt/Al@RFC-0.9, e) Pt/Al@RFC-1.2 and f) Pt/Al@RFC-1.8

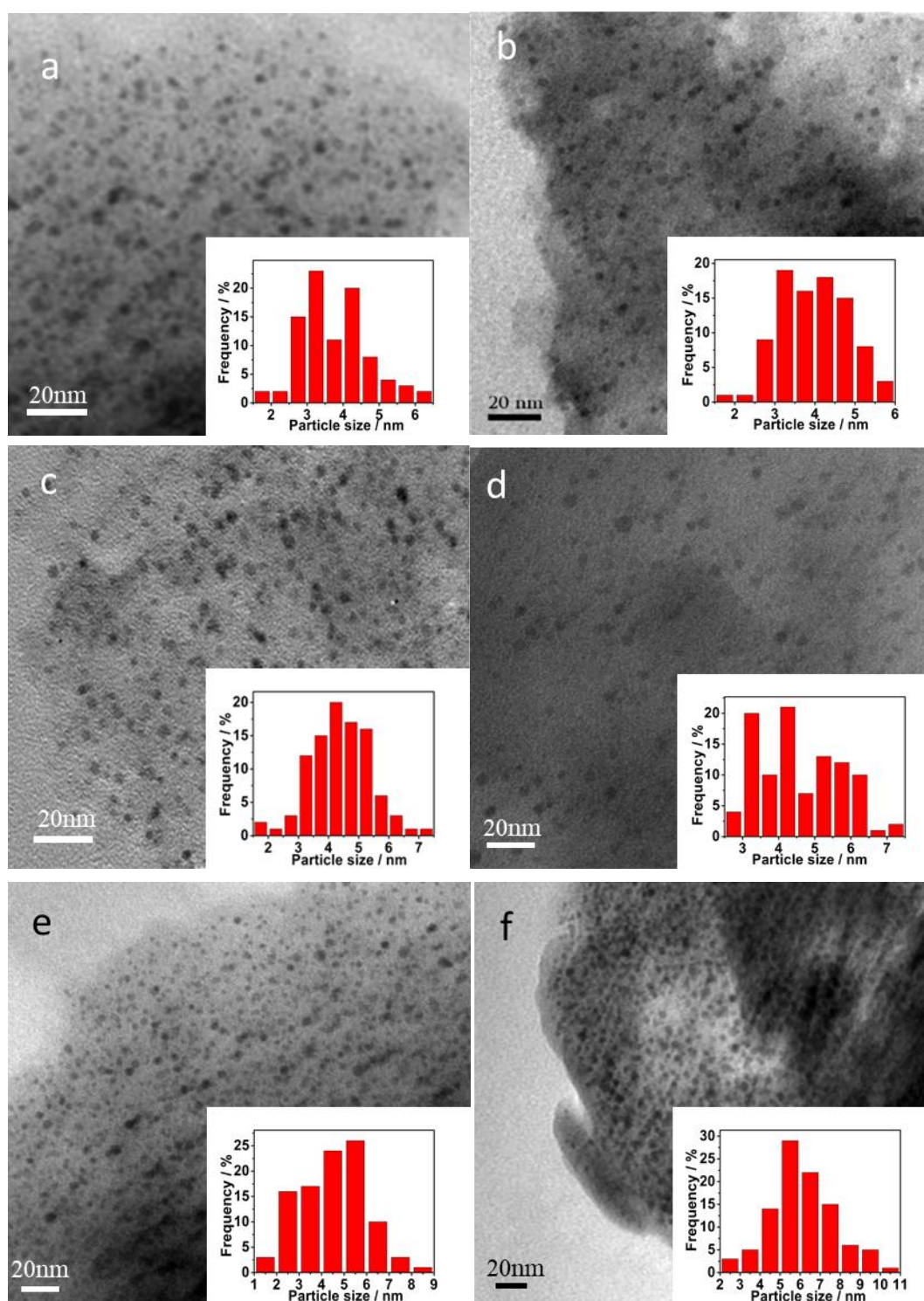


Figure S5. TEM images and the corresponding particle-size distribution histograms of a) Pt/Al@RFC, b) Pt/Al@RFC-0.3, c) Pt/Al@RFC-0.6, d) Pt/Al@RFC-0.9, e) Pt/Al@RFC-1.2, f) Pt/Al@RFC-1.8 and g) U-Pt/Al@RFC-1.8.

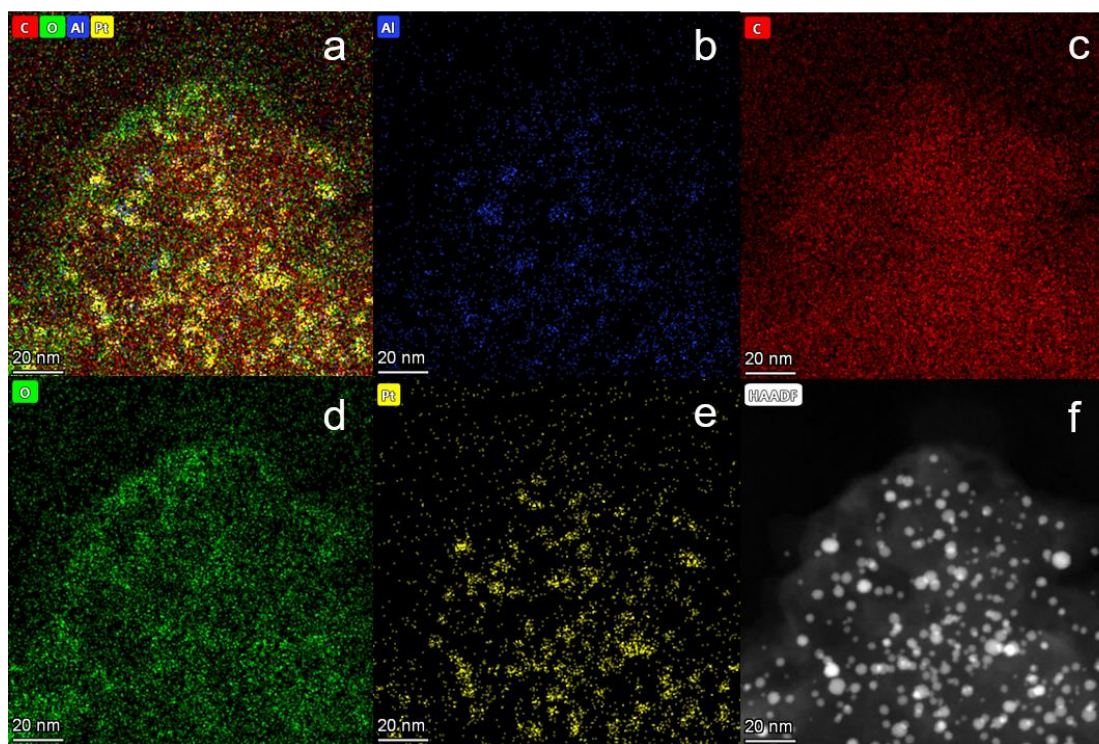


Figure S6. TEM images and corresponding elemental mapping images of Pt/Al@RFC-0.6.

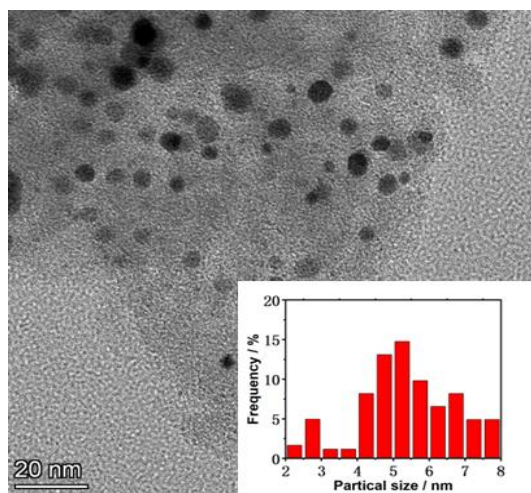


Figure S7. TEM image and the corresponding particle-size distribution histograms of Pt/Al@RFC-0.6-U.

Table S1. Properties of the RFC, Al-RFC-0.3, Al-RFC-0.6, Al-RFC-0.9, Al-RFC-1.2 and Al-RFC-1.8.

Samples	BET surface area (m ² / g)	Average pore size (nm)	Pore volume (cm ³ / g)
RFC	641	3.8	0.34
Al-RFC-0.3	594	3.7	0.32
Al-RFC-0.6	461	3.4	0.12
Al-RFC-0.9	404	3.2	0.11
Al-RFC-1.2	426	3.4	0.10
Al-RFC-1.8	371	3.4	0.06

Table S2. Elemental analysis of Pt/15AM and Pt/Al@RFC-0.6.

Sample	Pt (wt %)	C (wt %)	H (wt %)	O (wt %)
Pt/15AM	6.9	60.1	3.1	10.3
Pt/Al@RFC-0.6	4.8	61.8	3.1	8.5