

Supplementary Information

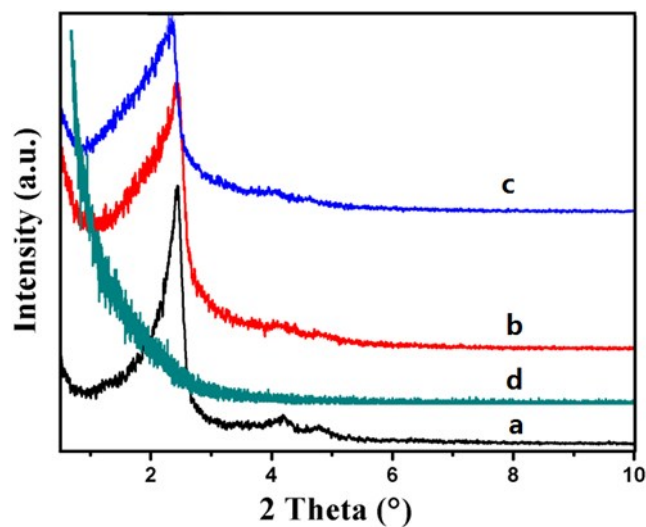


Fig. S1 Low-angle XRD patterns of different iron content samples with 0.3wt% platinum:
a. 7wt%, b. 10wt%, c. 12wt%, d. 13.5wt%

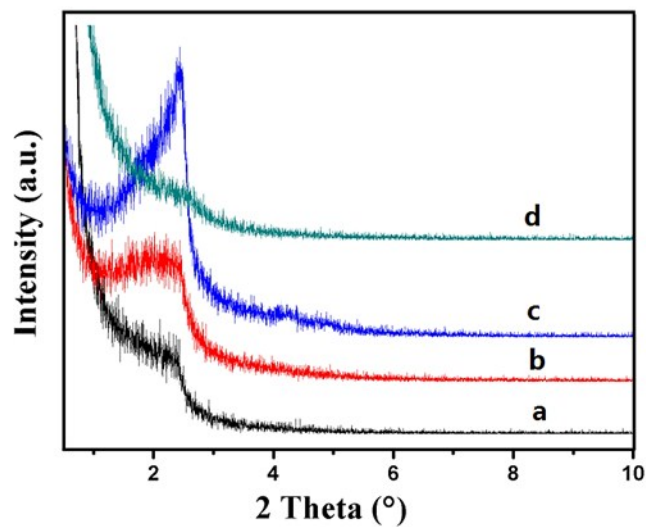


Fig. S2 Low-angle XRD patterns of different platinum content samples with 12wt% iron:
a. 0.1wt%, b. 0.2wt%, c. 0.3wt%, d. 0.4wt%

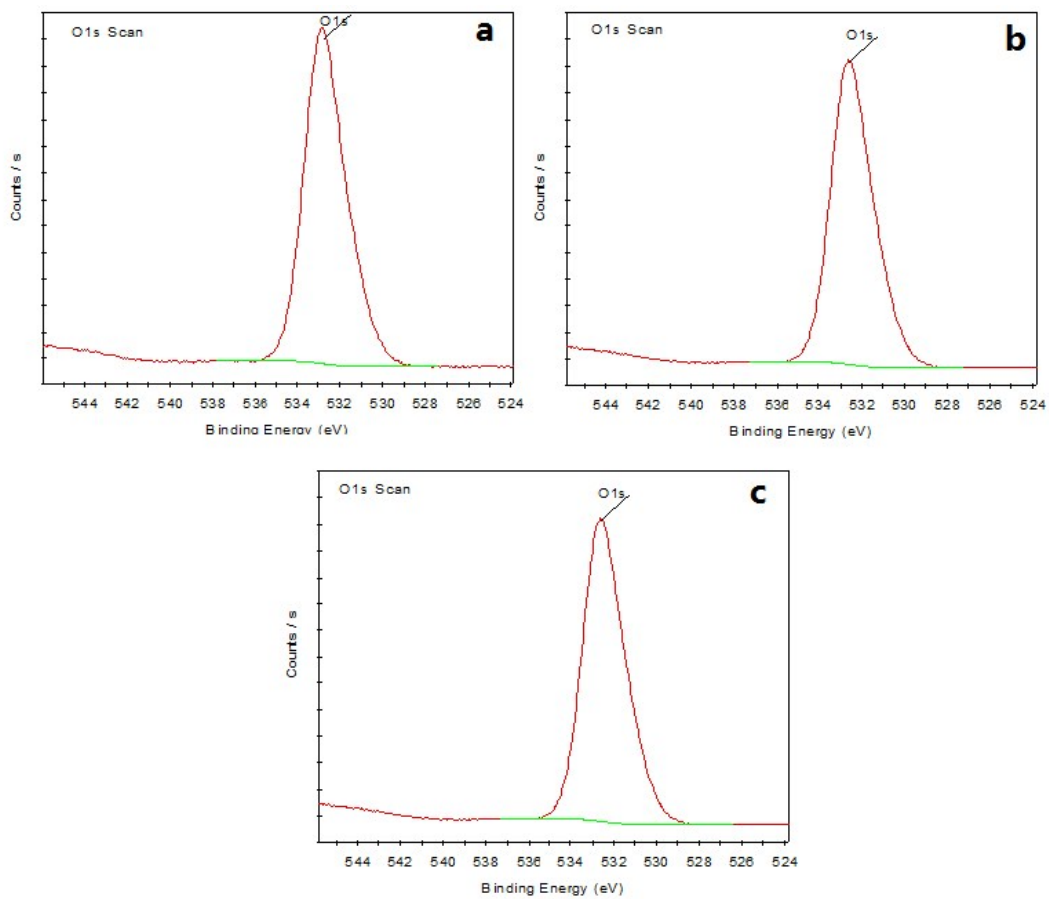


Fig. S3 O1s spectra from XPS of different samples:
 a. 0.3%Pt@7%Fe-MCM-41, b. 0.3%Pt@10%Fe-MCM-41, c. 0.3%Pt@12%Fe-MCM-41

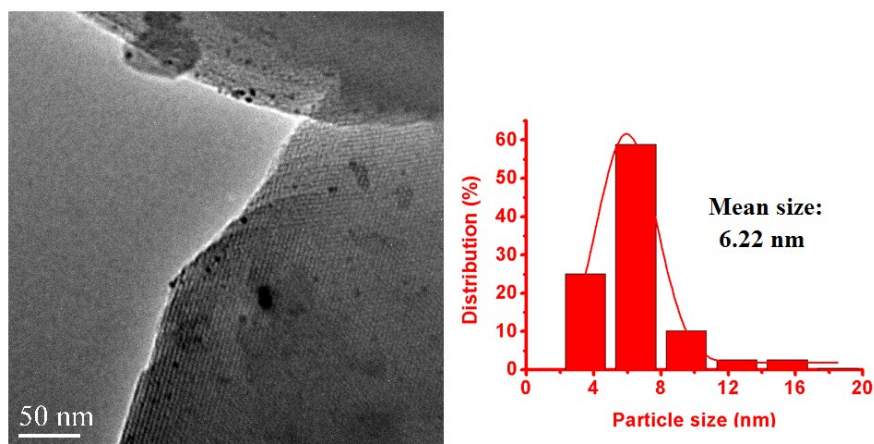


Fig. S4 HRTEM image and the corresponding Pt particle size distribution of the 0.3%Pt/12%Fe-MCM-41 sample

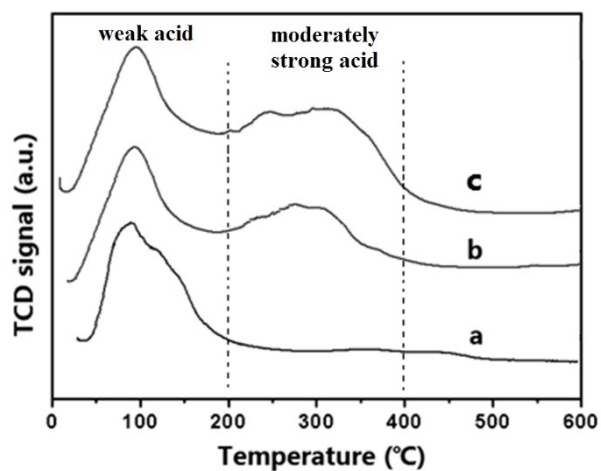


Fig. S5 NH₃-TPD curves of samples prepared by different method: a. 0.3%Pt-12%Fe/MCM-41-TM, b. 0.3%Pt@7%Fe-MCM-41, c. 0.3%Pt@12%Fe-MCM-41

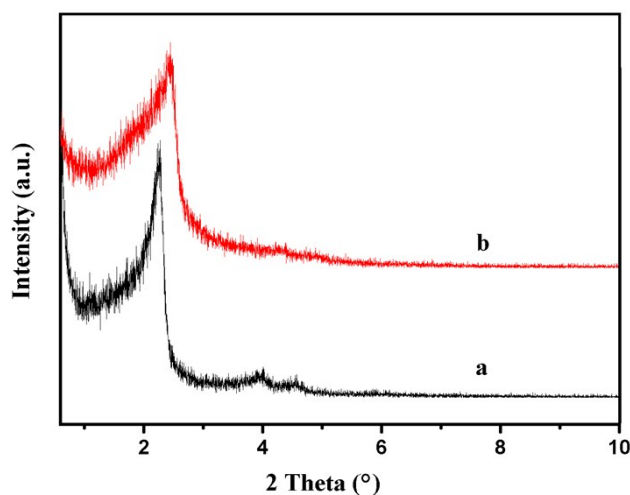


Fig. S6 Low-angle XRD patterns of 0.3%Pt@7%Fe-MCM-41 sample: a. before reaction, b. after reaction

Table S1 Density and distillation range of residual oil after hydrocracking over different catalysts

Parameters	Residual oil			
	—	0.3%Pt@7%Fe-MCM-41	0.3%Pt@10%Fe-MCM-41	0.3%Pt@12%Fe-MCM-41
Density	0.9723	0.8856	0.8310	0.7988
Initial boiling point, °C	178	85	80	70
10%, °C	190	106	100	85
30%, °C	198	110	100	100
50%, °C	208	115	110	110
70%, °C	220	140	120	118
90%, °C	245	160	140	135
95%, °C	254	175	160	155
Dry point, °C	268	190	175	170