Support information

Hierarchical ZSM-22/PHTS composite material and its hydro-isomerization performance in hydro-upgrading of gasoline

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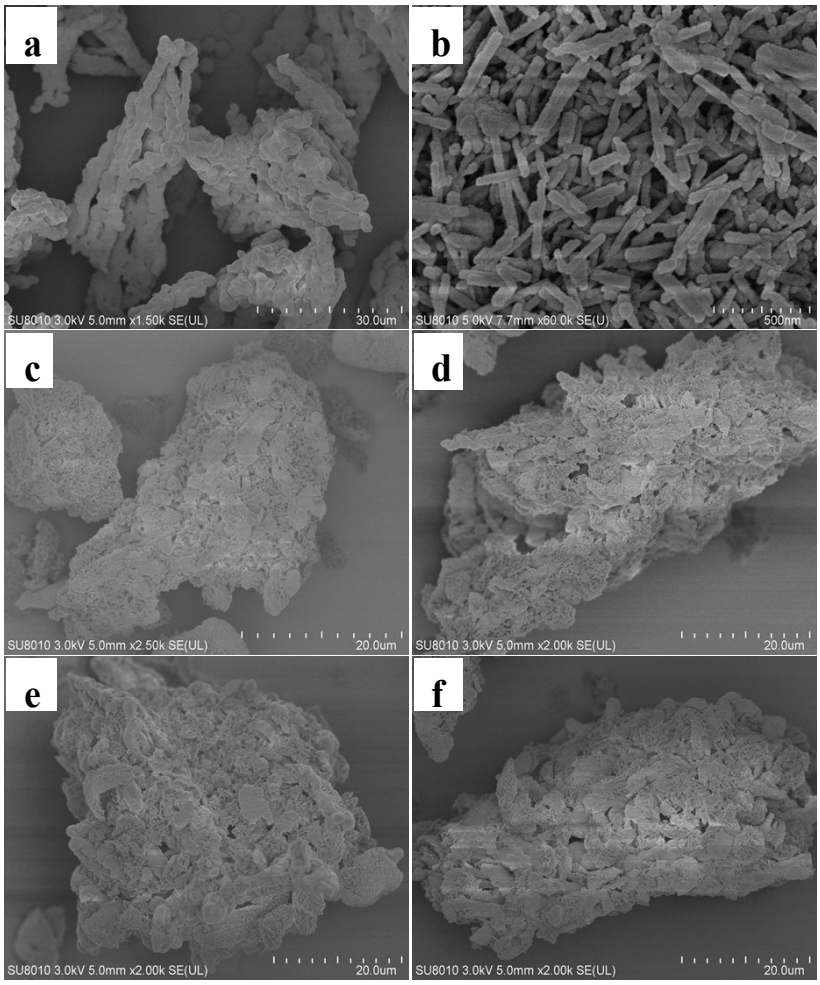

Fig. S1. SEM images of the series synthesized materials
(a) PHTS; (b) ZSM-22; (c) ZP80; (d) ZP100; (e) ZP120; (f) ZP140

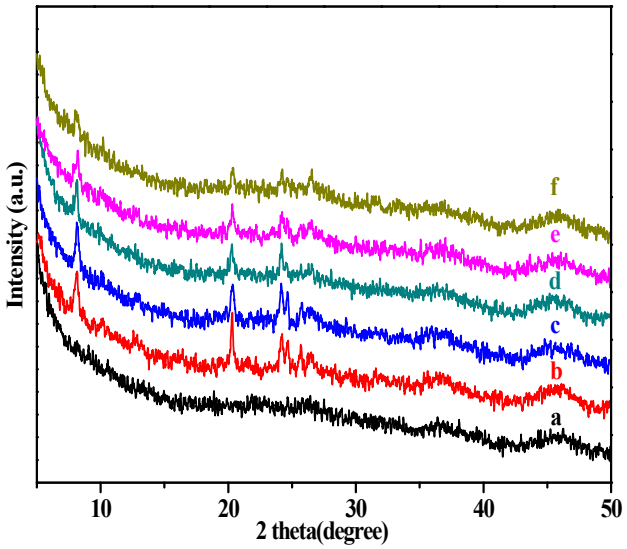

Fig. S2. Wide angle XRD pattern of series catalysts
(a) CoMo/PA; (b) CoMo/ZA; (c) CoMo/ZPA80;
(d) CoMo/ZPA100; (e) CoMo/ZPA120; (f) CoMo/ZPA140

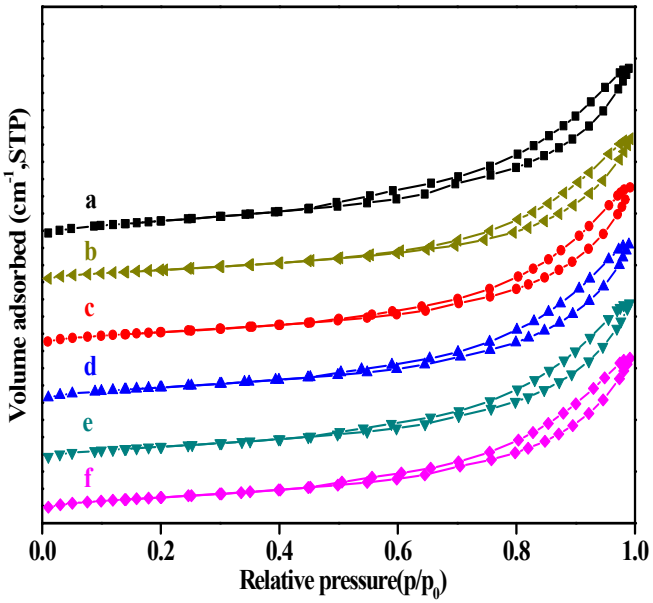

Fig. S3. N_2 adsorption-desorption isotherms of the series catalysts
(a) CoMo/PA; (b) CoMo/ZA; (c) CoMo/ZPA80;
(d) CoMo/ZPA100; (e) CoMo/ZPA120; (f) CoMo/ZPA140

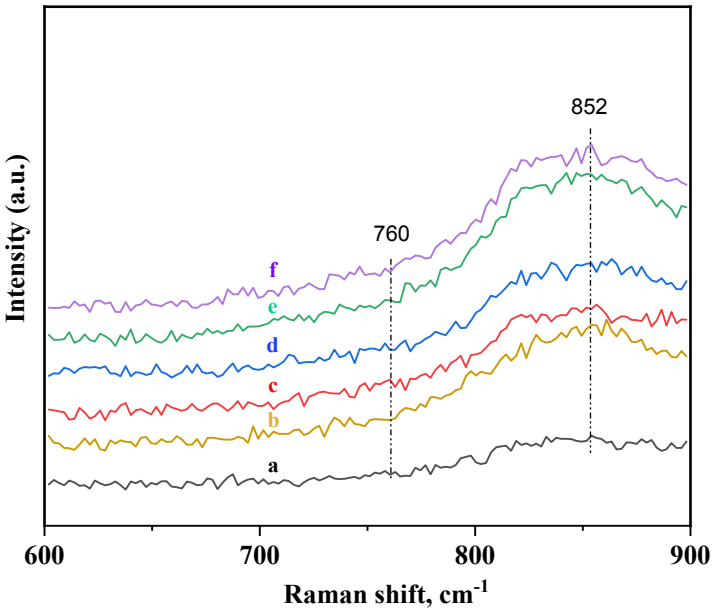

Fig. S4 Raman spectra between 600 and 800 cm^{-1} of various catalysts.
(a) CoMo/PA; (b) CoMo/ZA; (c) CoMo/ZPA80;
(d) CoMo/ZPA100; (e) CoMo/ZPA120; (f) CoMo/ZPA140

Table S1. Textural properties of the series catalysts

Samples	S_{BET} ($m^2 \cdot g^{-1}$)	V ($cm^3 \cdot g^{-1}$)	d_{BJH} (nm)
CoMo/PA	301.6	0.85	11.21
CoMo/ZA	216.5	0.71	12.52
CoMo/ZPA80	233.6	0.78	12.97
CoMo/ZPA100	244.6	0.78	12.36
CoMo/ZPA120	251.0	0.79	12.38
CoMo/ZPA140	246.1	0.76	12.15