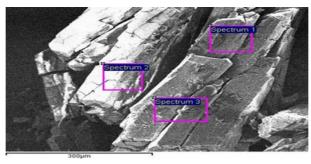
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## Anion Exchange Induced Tunable Catalysis Properties of an Uncommon Butterfly-like Tetranuclear Copper(II) Cluster and Magnetic Characterization

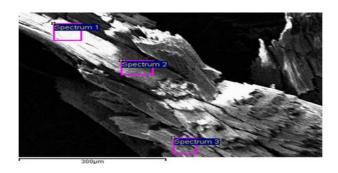
Wen-Juan Chu, Hong-Chang Yao, Yao-Ting Fan\*, Hong-Wei Hou

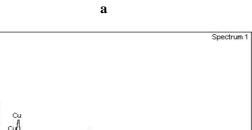


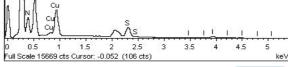
a

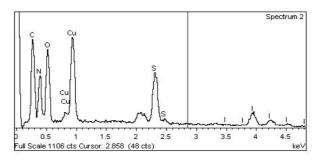
Spectrum 1 0.5 1 1.5 2 2.5 Scale 8854 cts Cursor: 0.027 (2650 cts) 3.5 4.5 4 5 Spectrum 2 0.5 1 1.5 2 2.5 Scale 8854 cts Cursor: 0.027 (2642 cts) 3.5 4 4.5 5 3 Spectrum 3 4.5 0.5 1 1.5 2 2.5 icale 11269 cts Cursor: 0.054 (692 cts) 3.5 4 5 b

Figure S1 a) SEM and b) EDS of the compound 1









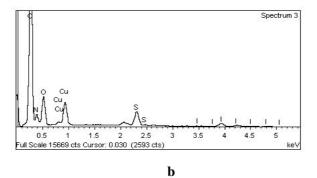
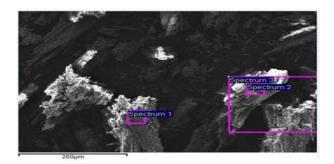


Figure  $\boldsymbol{S2}$  a) SEM and b) EDS of the anion-exchange product 1-MIx



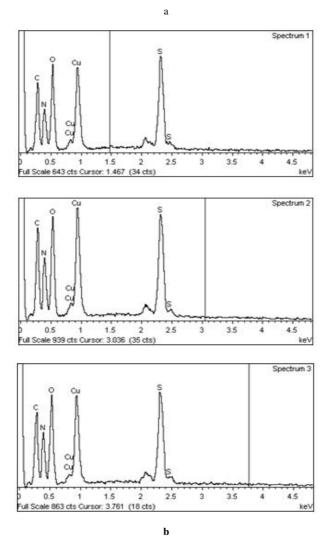


Figure S3 a) SEM and b) EDS of the anion-exchanged product  $1\text{-MNO}_3x$ 

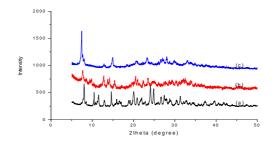


Figure S4 Powder XRD patterns: a) experimental pattern of 1; b) experimental pattern of its ion-exchanged products obtained by immersing 1 in KI solution; c) experimental pattern of its ion-exchanged products obtained by immersing 1 in  $NaNO_3$  solution.

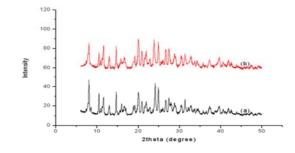


Figure S5 Powder XRD patterns: a) experimental pattern of 1; b) experimental pattern of compound 1 after catalysis by reprecipitation.