Facile Synthesis of Magnetic Metal (Mn, Fe, Co, and Ni) Oxide Nanocrystals via Cation-Exchange Reaction

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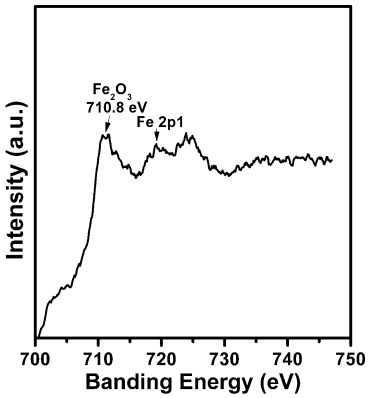

Figure S1. XRS of Fe_2O_3 nanoparticles.

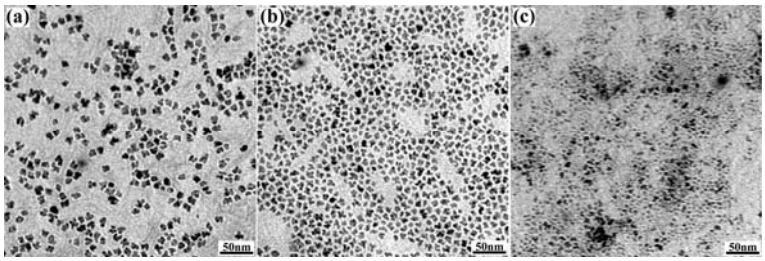

Figure S2. TEM images of Fe_2O_3 nanoparticles which were produced by different molar ratio of $Cu(OH)_2/FeCl_2$, $Cu(OH)_2/FeCl_2$=3:1 (a), $Cu(OH)_2/FeCl_2$=1:1 (b) and $Cu(OH)_2/FeCl_2$=1:3 (c).

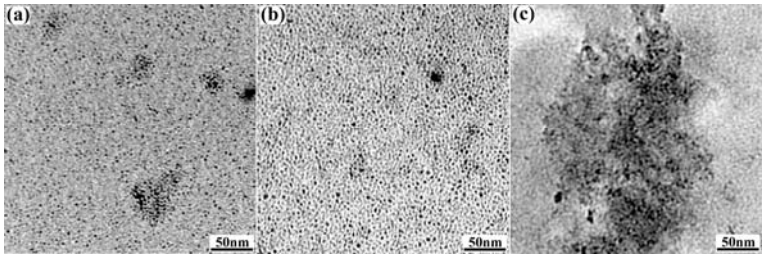

Figure S3. TEM images of Mn_3O_4 nanoparticles which were produced by different molar ratio of $Cu(OH)_2/MnCl_2$, $Cu(OH)_2/MnCl_2$=3:1 (a), $Cu(OH)_2/MnCl_2$=1:1 (b) and $Cu(OH)_2/MnCl_2$=1:3 (c).

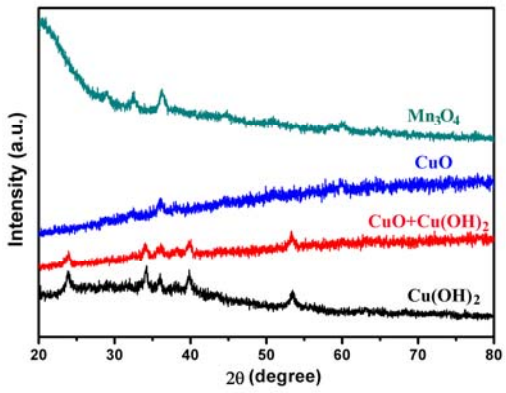

Figure S4. XRD patterns of sample taken at different reaction time in experiment. The transformation from $Cu(OH)_2$ to Mn_3O_4 is clear.

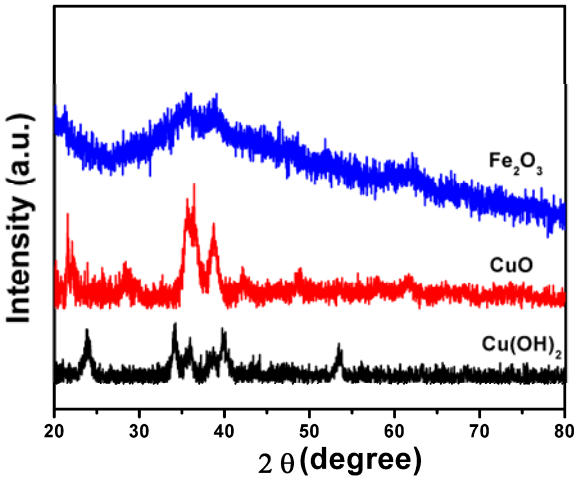

Figure S5. XRD patterns of sample taken at different reaction time in experiment. The transformation from $Cu(OH)_2$ to Fe_2O_3 is clear.

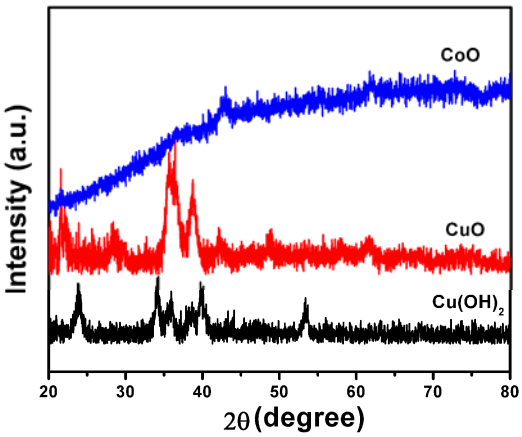

Figure S6. XRD patterns of sample taken at different reaction time in experiment. The transformation from $Cu(OH)_2$ to CoO is clear.

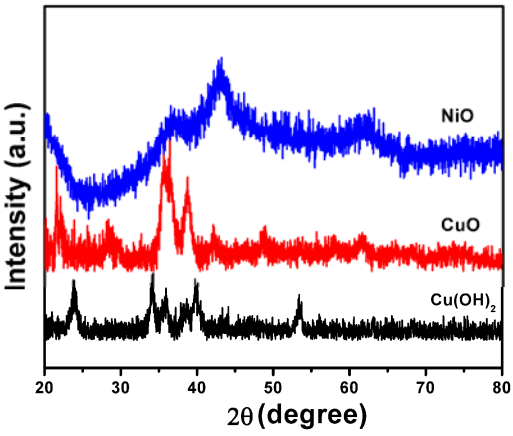

Figure S7. XRD patterns of sample taken at different reaction time in experiment. The transformation from $Cu(OH)_2$ to NiO is clear.

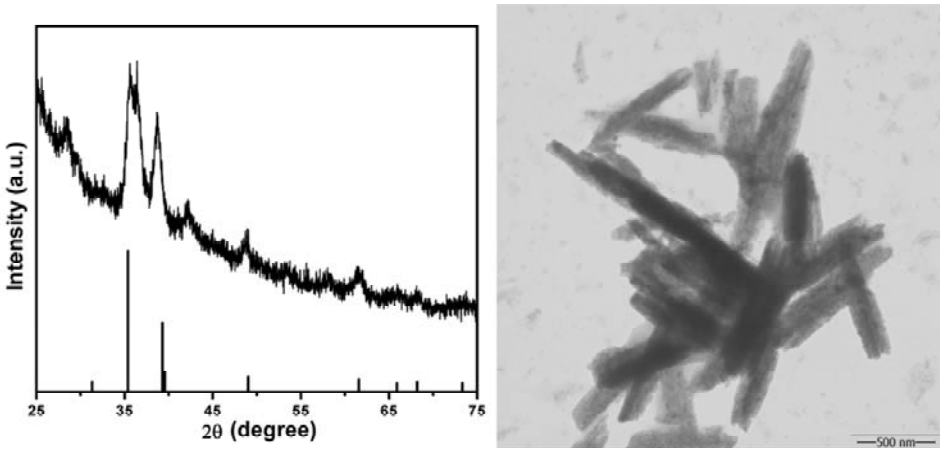

Figure S8. XRD patterns and TEM images of CuO nanocrystals, which is produced by decomposition of $Cu(OH)_2$ without any free metal cations.

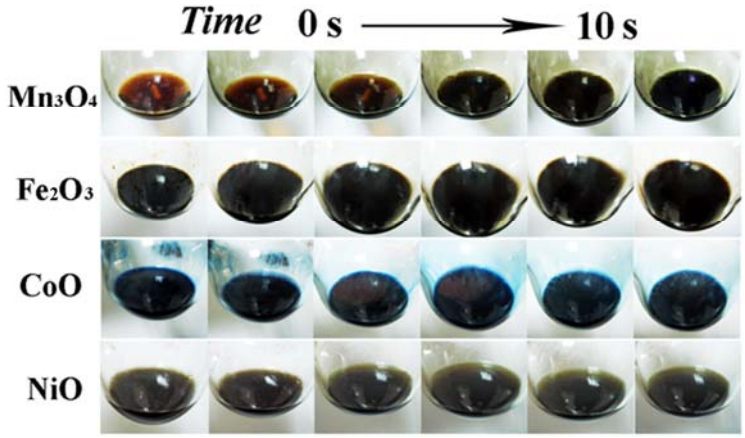

Figure S9. The photo images of magnetic metal oxide reaction solution which are exposed to air.