



**Fig. S2** Absorbance spectra of  $\text{Co}_{1.7}\text{M}_{0.3}(\text{OH})\text{PO}_4$  ( $\text{M} = \text{Ni}, \text{Cu}$ ) at room temperature. The spectra of  $\text{M}_2(\text{OH})\text{PO}_4$  ( $\text{M} = \text{Co}, \text{Cu}$ ) are also shown for comparison.