## **Supporting Information**

Evaluation of Ciprofloxacin Destruction between Ordered Mesoporous and Bulk NiMn<sub>2</sub>O<sub>4</sub>/CF Cathode: Efficient Mineralization in a Heterogeneous Electro-Fenton-like Process

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Samples	Specific area	Pore volume	Average pore
	$(m^2 \cdot g^{-1})$	(cc·g <sup>-1</sup> )	diameter (nm)
meso-NiMn <sub>2</sub> O <sub>4</sub>	262	0.33	4.63
bulk-NiMn <sub>2</sub> O <sub>4</sub>	55	0.18	9.32

Table S1. The BET specific area, pore volume, and average pore diameter of catalysts

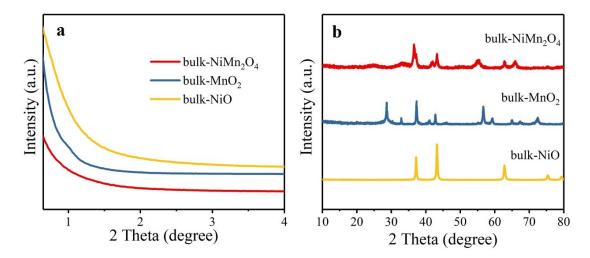
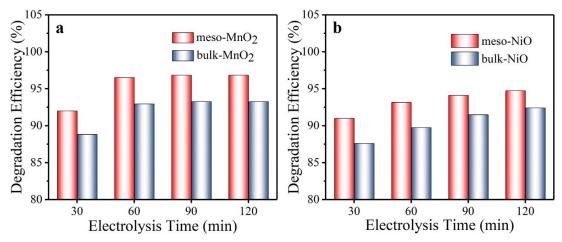


Fig. S1 (a) Low angle XRD patterns and (b) wide angle XRD patterns of bulk- $NiMn_2O_4$ , bulk- $MnO_2$  and bulk-NiO.



**Fig. S2** Degradation efficiency of CIP with various catalysts/CF cathodes in EF-like process. (a) meso-MnO<sub>2</sub>/CF and bulk-MnO<sub>2</sub>/CF. (b) meso-NiO and bulk-NiO.

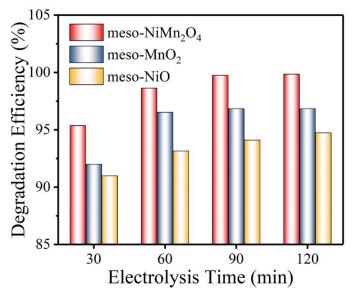
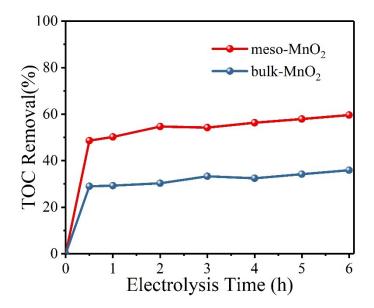


Fig. S3 Degradation efficiency of CIP with meso- $MnO_2/CF$ , meso-NiO/CF and meso- $NiMn_2O_4/CF$  cathodes in EF-like process.



**Fig. S4** TOC removal of CIP with meso-MnO<sub>2</sub>/CF and bulk-MnO<sub>2</sub>/CF cathodes in EF-like process.

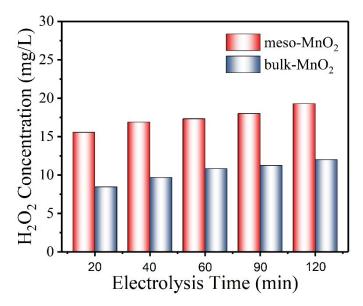


Fig. S5 The concentration of in situ electro-generated  $H_2O_2$  with meso-MnO<sub>2</sub>/CF and bulk-MnO<sub>2</sub>/CF cathodes in EF-like process.

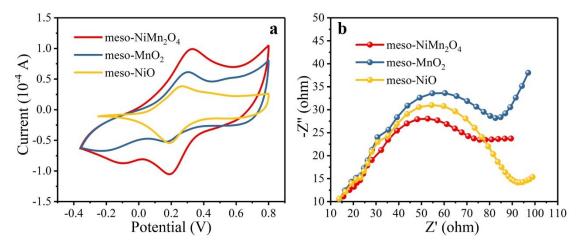


Fig. S6 (a) Cyclic voltammetry curves and (b) EIS Nyquist plots of meso-Ni $Mn_2O_4$ , meso- $MnO_2$  and meso-NiO.

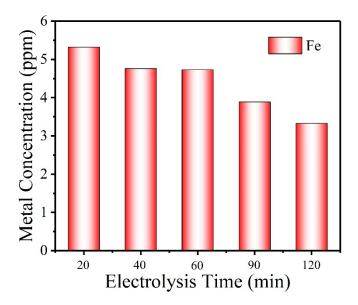


Fig. S7 The concentration of Fe element during electrolysis in EF-like process.

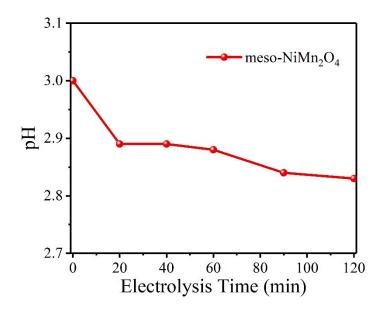


Fig. S8 The pH of solution during electrolysis in EF-like process with meso-Ni $Mn_2O_4/CF$  cathode.