

Supporting Information

Direct Carbonization of Co-doped NH₂-MIL-53(Fe) for Electrocatalysis of Oxygen Evolution Reaction

Yujie Han^{a,b}, Junfeng Zhai^a, Lingling Zhang^{a,b}, and Shaojun Dong^{a,b}✉

^aState Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry,

Chinese Academy of Sciences, Changchun, Jilin, 130022 (China)

^bUniversity of Chinese Academy of Sciences, Beijing, 100049 (China)

E-mail: dongsj@ciac.ac.cn

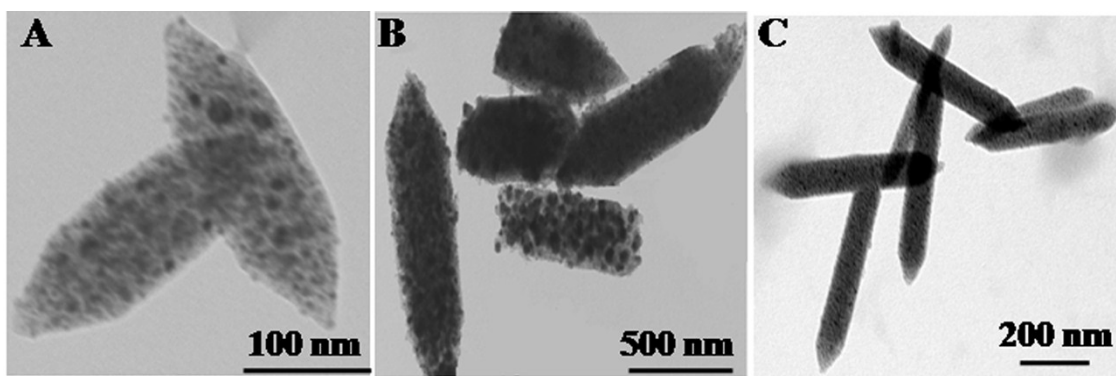


Figure S1 TEM images of (A) MOF($\text{Fe}_3\text{-Co}_1$), (B) MOF($\text{Fe}_1\text{-Co}_1$), and (C) MOF($\text{Fe}_1\text{-Co}_3$) calcinated at 550 °C in N_2 atmosphere.

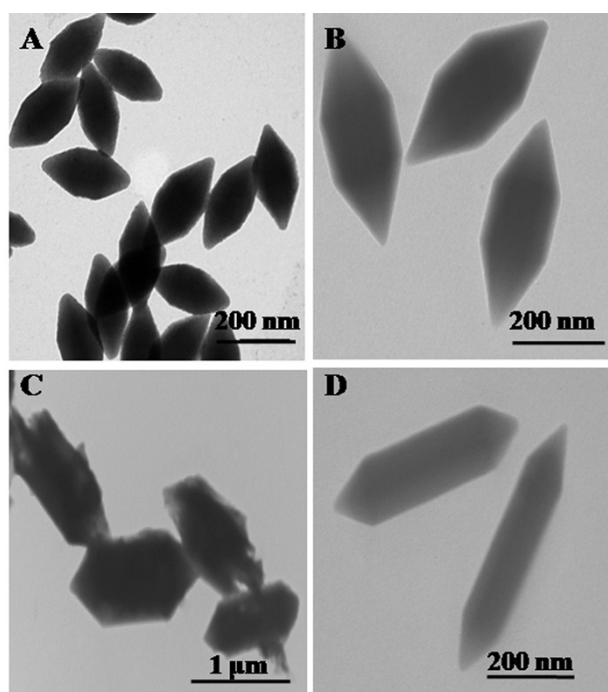


Figure S2 TEM images of (A) $\text{NH}_2\text{-MIL-53(Fe)}$, (B) MOF($\text{Fe}_3\text{-Co}_1$), (C) MOF($\text{Fe}_1\text{-Co}_1$), and (D) MOF($\text{Fe}_1\text{-Co}_3$).

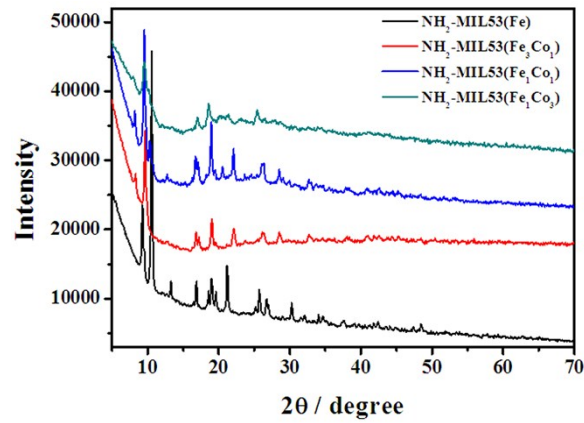


Figure S3 XRD patterns of $\text{NH}_2\text{-MIL-53(Fe)}$ (black line), $\text{NH}_2\text{-MIL-53(Fe}_3\text{Co}_1)$ (red line), $\text{NH}_2\text{-MIL-53(Fe}_1\text{Co}_1)$ (blue line), and $\text{NH}_2\text{-MIL-53(Fe}_1\text{Co}_3)$ (green line).

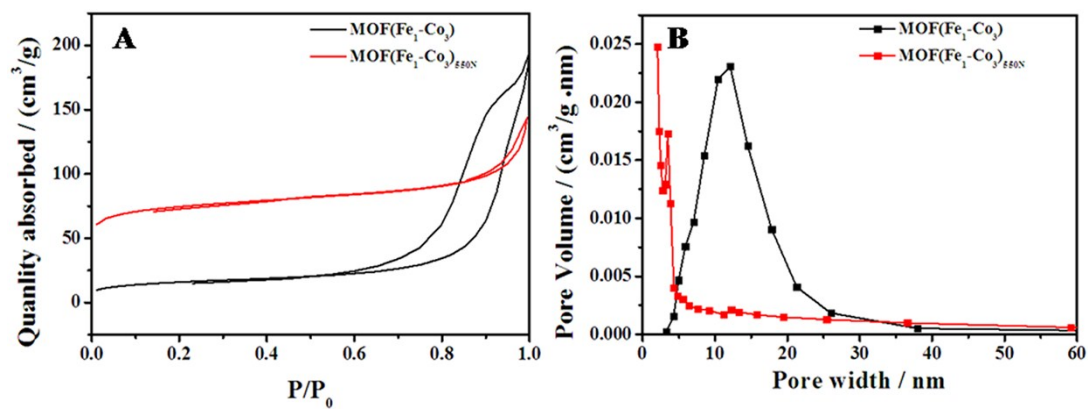


Figure S4 BET measurements: (A) N_2 sorption isotherms and (B) BJH desorption pore size distributions of $\text{MOF(Fe}_1\text{-Co}_3)$ and $\text{MOF(Fe}_1\text{-Co}_3)_{550\text{N}}$.

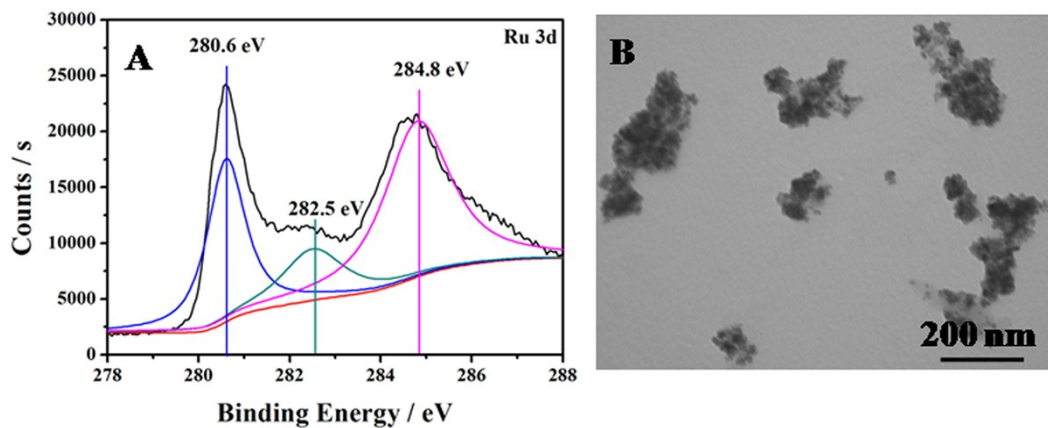


Figure S5 Deconvoluted Ru 3d XPS spectra of as-prepared RuO₂ (A) and TEM image of as-prepared RuO₂. The deconvoluted peaks at 280.6, 282.5 and 284.3 eV are consistent with the peaks of Ru 3d_{5/2}, Ru 3d_{5/2} sat and Ru 3d_{3/2}, respectively, which indicates the presence of Ru(IV). According to David J. Morgan^[1], these binding energies suggest the formation of RuO₂.

Reference

- [1] D. J. Morgan, Surf. Interface Anal. 2015, 47, 1072–1079.