

## Supporting Information

### **Bimetallic MOF-templated synthesis of alloy nanoparticles-embedded porous carbons for oxygen evolution and reduction reactions**

Zakary Lionet<sup>[a]</sup>, Shun Nishijima<sup>[a]</sup>, Tae-Ho Kim<sup>[b]</sup>, Yu Horiuchi<sup>\*[a]</sup>, Soo Wahn Lee<sup>[c]</sup> and Masaya Matsuoka<sup>\*[a]</sup>

[a] Department of Applied Chemistry, Graduate school of engineering  
Osaka Prefecture University  
1-1, Gakuen-cho, Naka-ku, Sakai, Osaka 599-8531, Japan

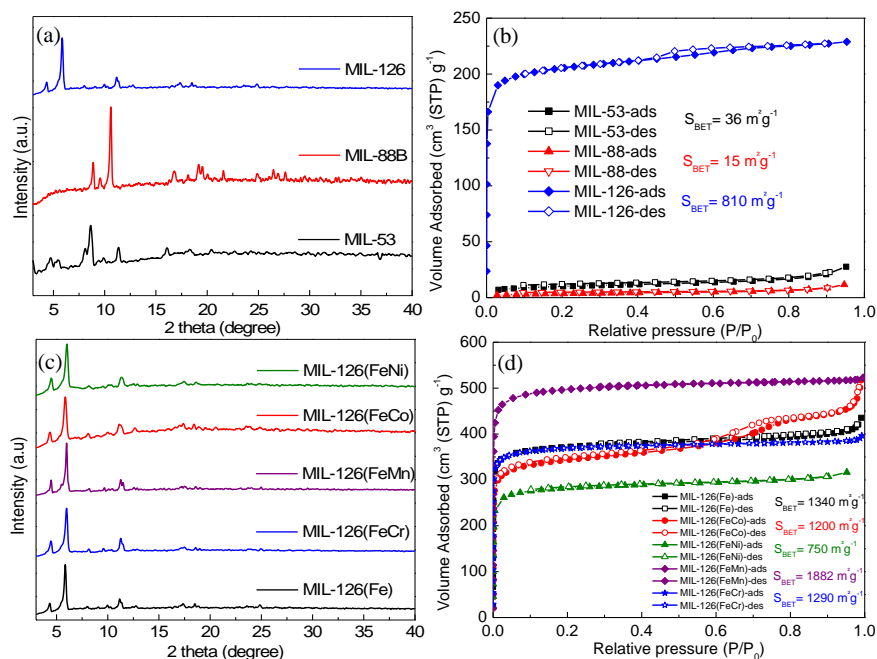
[b] Division of Mechanics and ICT Convergence Engineering, Sun Moon University,  
Asan, Republic of Korea

[c] Department of Environmental and Bio-Chemical Engineering, Sun Moon  
University, GalSan-Ri, Tangjung-Myon, Asan, Chung-nam 336708, Republic of  
Korea

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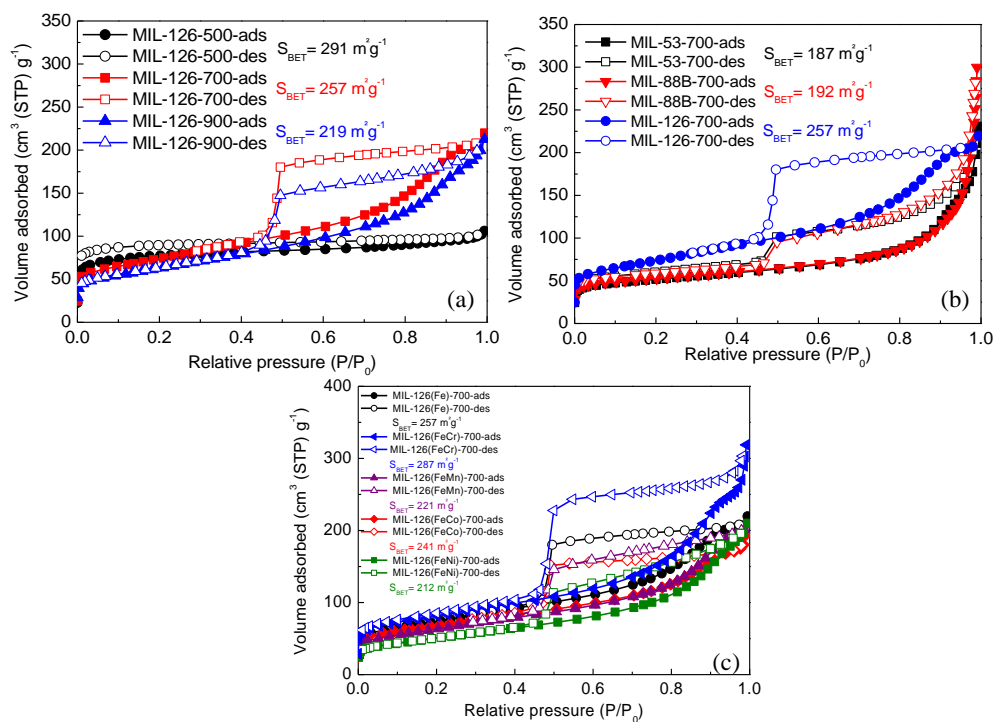
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## Structural characterization of the MOFs



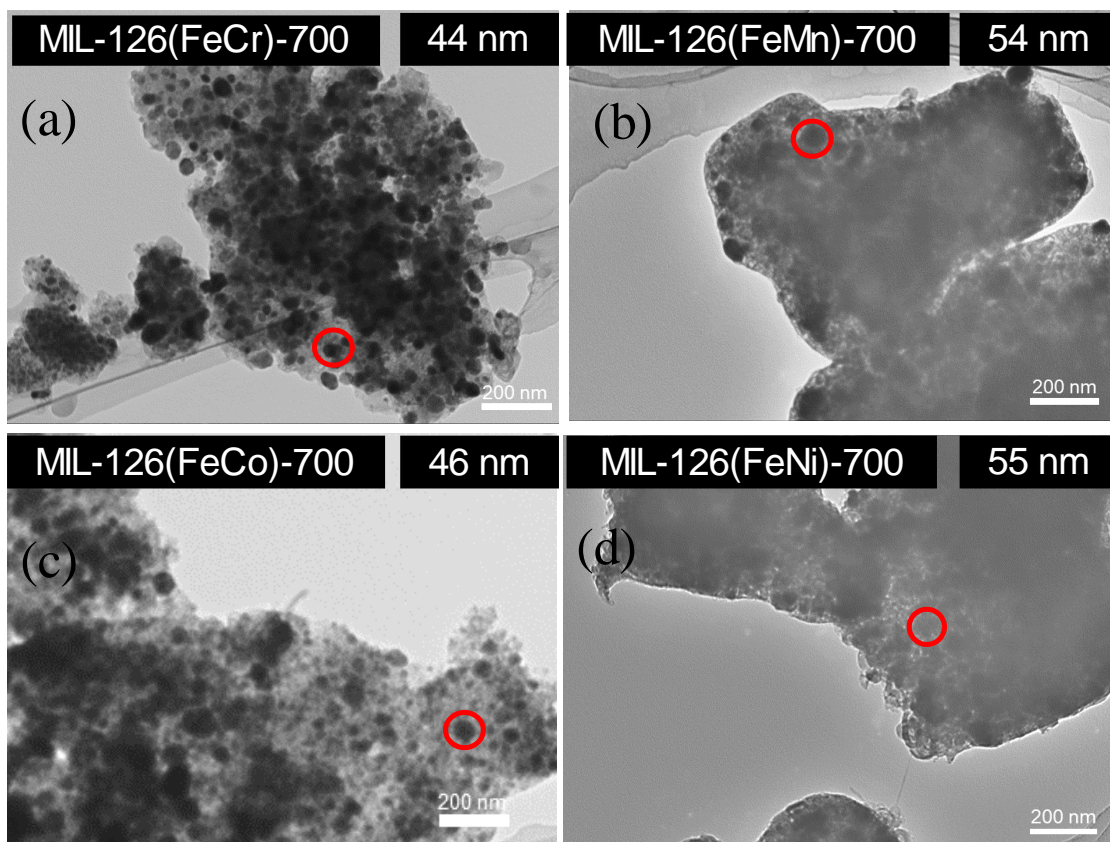
**Fig. S1.** PXRD patterns and N<sub>2</sub> adsorption-desorption isotherms of (a), (b) iron-based MOFs fabricated from direct synthesis and (c), (d) bimetallic MIL-126 synthesized by ligand exchange process

## N<sub>2</sub> adsorption-desorption isotherms of MOF-derived composites



**Fig. S2.** N<sub>2</sub> adsorption-desorption isotherms of (a) carbonized MIL-126 at various temperature for 2 hours, (b) various iron-based MOFs after pyrolysis at 700 °C during 2 hours, and (c) bimetallic MIL-126(FeM) (where M = Ni, Co, Mn, Cr) after 2 hours heat treatment at 700 °C.

Transmission electron microscopy pictures of MIL-126(FeM)-700 composites



**Fig. S3.** TEM images of (a) MIL-126(FeCr)-700, (b) MIL-126(FeMn)-700, (c) MIL-126(FeCo)-700, and (d) MIL-126(FeNi)-700.