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One-step fabrication of Cu-based metal organic framework multilayer core-shell microspheres for efficiently catalyzing oxygen reduction reaction

Ping Liu [a], Jia Wang [a], Jie Bai [a], Yifei Ma [b], Sihan Lu [a], Nini Ma [a], Shujun Chao [a,*]

[a] *Key Laboratory of Medical Molecular Probes, School of Basic Medical Sciences, Xinxiang Medial University, Xinxiang 453003, P. R. China*

[b] *Henan Chilwee Genshore Power Co., Ltd, Qinyang 454550, P. R. China.*

E-mail address: chaoshujun1979@163.com (S. Chao).

Tel: +86-373-3029128; fax: +86-373-3029128.

Supplementary Information

Contents

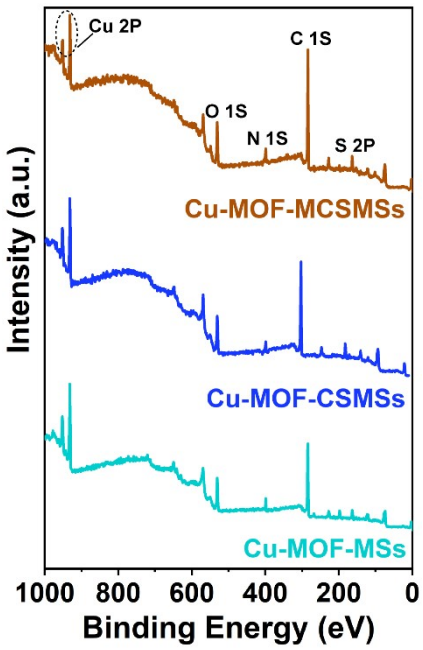

Fig. S1 XPS survey spectra of Cu-MOF-MSs, Cu-MOF-CSMSs and Cu-MOF-MCSMSs.

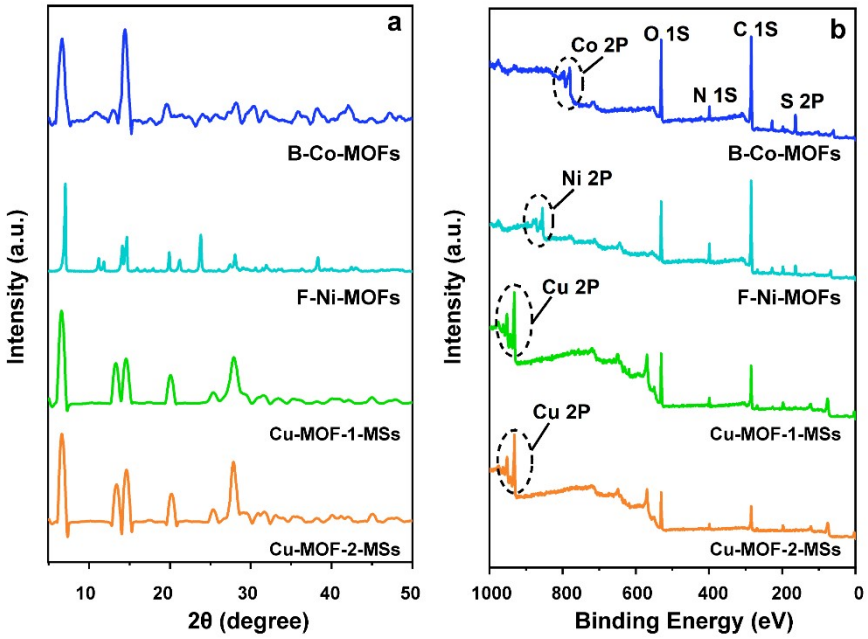

Fig. S2 XRD patterns (a) and XPS survey spectra (b) of B-Co-MOFs, F-Ni-MOFs, Cu-MOF-1-MSs and Cu-MOF-2-MSs.

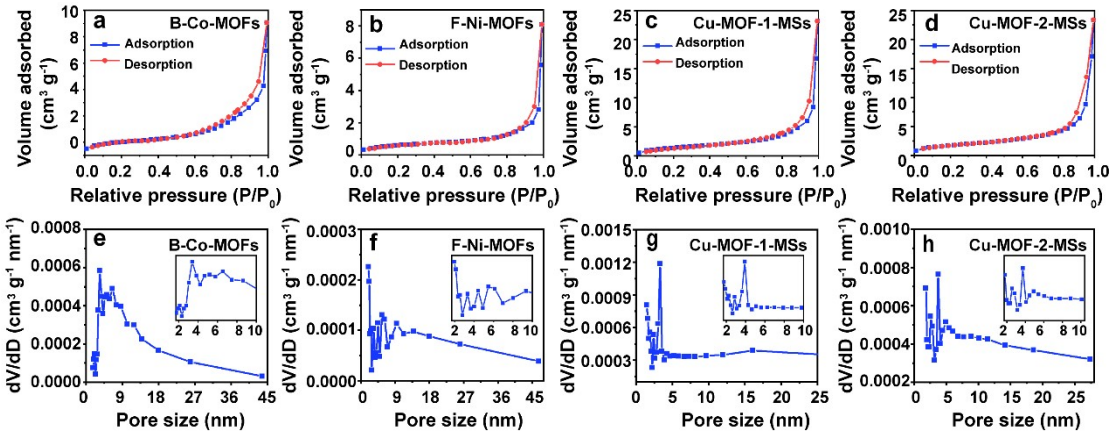

Fig. S3 N_2 sorption isotherms and pore size distribution curves of B-Co-MOFs (a and e), F-Ni-MOFs (b and f), Cu-MOF-1-MSs and Cu-MOF-1-MSs (d and h).

Table S1. List of ORR performance of some reported Cu-based catalysts. All measured potentials were normalized to the RHE scale.

Material	E_O / V (*vs.* RHE)	$E_{1/2}$ / V (*vs.* RHE)	Electrolyte	Reference
Cu-MOF-MCSMSs	0.88	0.76	0.1 M KOH	This work
Cu-PPYTZ/C	0.72	0.48	PBS (pH=7)	1
$FeCu_{1.0}$@NC	0.88	0.69	0.1 M KOH	2
Cu-N_x/C	0.78	0.76	0.1 M KOH	3
Nano-CuS(8.8 wt %)@Cu-BTC	0.85	0.67	0.1 M KOH	4
Cu-CTF/CP	0.81	0.63	PBS (pH=7)	5
Cu-MOF@mc	0.87	0.60	0.1 M KOH	6

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