

Table S1. Synthesis conditions of Cu-BTC_RT_x under room temperature synthesis.

	Cu(NO ₃) ₂ ·3H ₂ O	H ₃ BTC	modulator
Cu-BTC_RT_10	0.014 M	0.009 M	0.14 M
Cu-BTC_RT_20	0.014 M	0.009 M	0.28 M

Table S2. Synthesis conditions of Cu-BTC_y under solvothermal synthesis.

	Cu(NO ₃) ₂ ·3H ₂ O	H ₃ BTC	modulator
Cu-BTC_0	0.12 M	0.08 M	-
Cu-BTC_2	0.12 M	0.08 M	0.24 M
Cu-BTC_10	0.12 M	0.08 M	1.21 M
Cu-BTC_20	0.12 M	0.08 M	2.43 M

Table S3. Comparison of the cycling stability with the previously reported Li deposition.

Materials	Deposition Capacity (mA h cm ⁻²)	Current Density (mA cm ⁻²)	Coulombic Efficiency (%)	Cycle Number	Nucleation Overpotential (mV)
Crumpled Graphene ¹	1	0.5	97%	50	
Cu-CuO-Ni hybrid structure ²	1	1	95%	250	
Ag@NCS ³	4	0.5	98.6%	400	~1
AgNPs@Cu ⁴	1	1	94.5%	100	
CuO NAs/CF (MOF-derived CuO nanorod arrays on Cu foil current collector) ⁵	1	1	98%	180	30
Ag@HKUST-1 ⁶	1	0.5	97%	300	3
	1	1	97.50%	50	
	5	1	98.50%	50	
Modulated CuBTC ^(This work)	1	1	98.2%	520	0.6
Ag@CuBTC ^(This work)	1	1	92.3%	70	

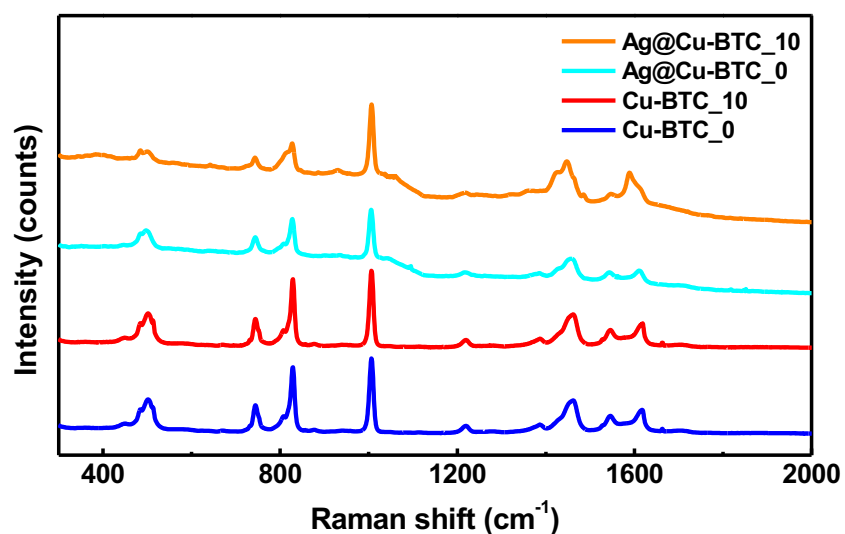


Figure S1. Raman spectra of Cu-BTC_0 and Cu-BTC_10, and the corresponding silver-doped MOFs Ag@Cu-BTC_0 and Ag@Cu-BTC_10.

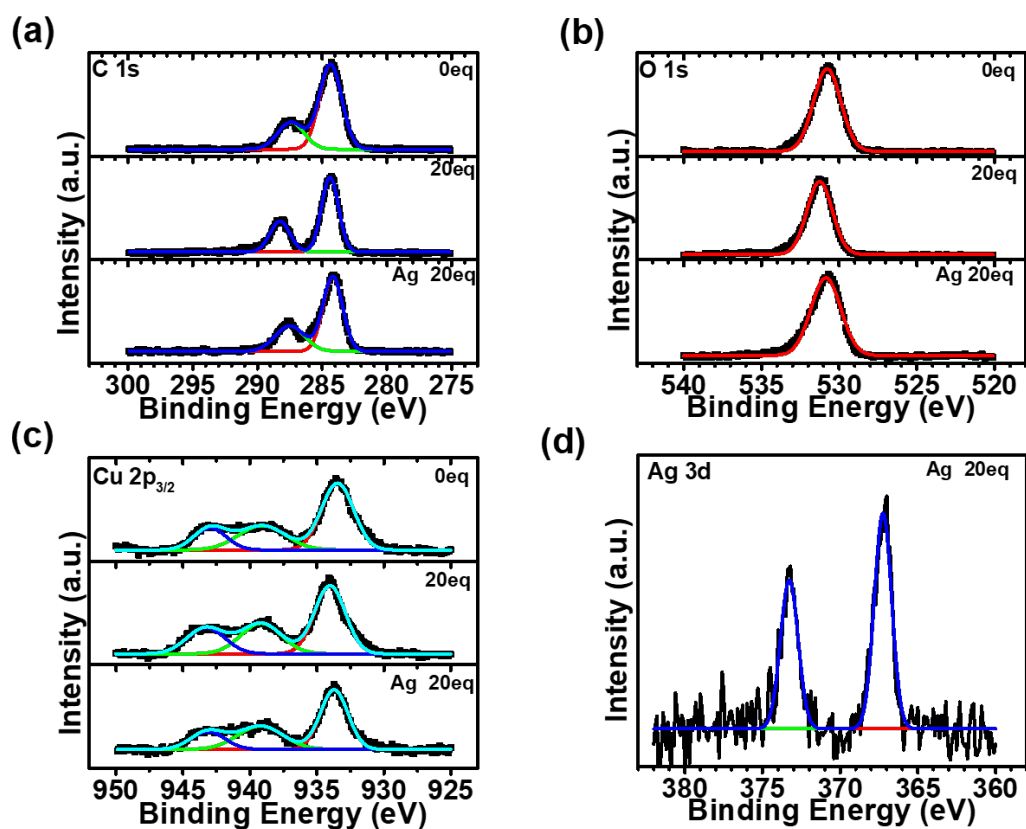


Figure S2. XPS (a) C 1s, (b) O 1s, (c) Cu 2p_{3/2}, and (d) Ag 3d spectra of Cu-BTC_0 and Cu-BTC_20, and the corresponding silver-doped MOF Ag@Cu-BTC_20.

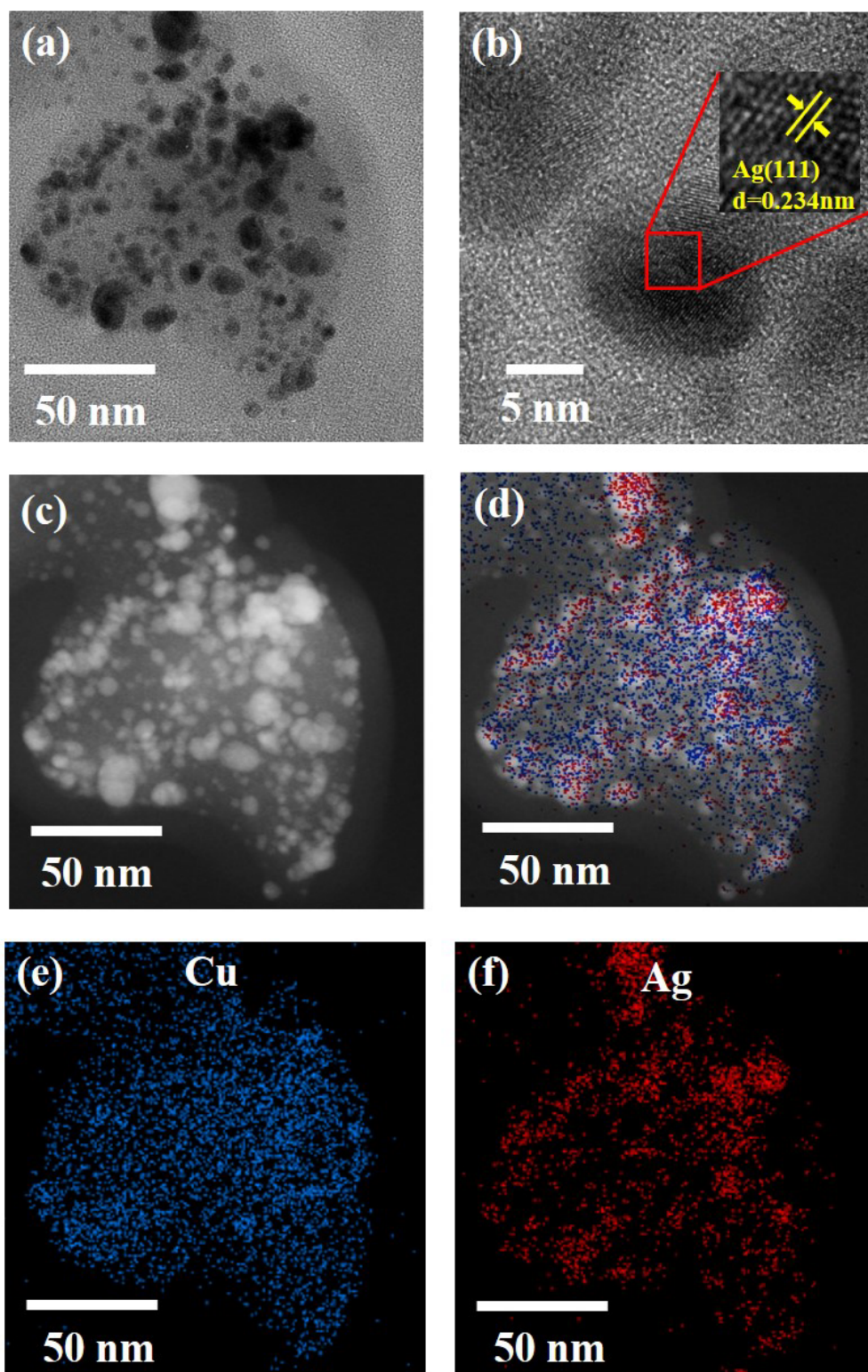


Figure S3. The TEM image of Ag@Cu-BTC₁₀ (a), (b) HRTEM for Ag d-spacing, (c) STEM image, and (d-f) STEM-EDS mapping results.

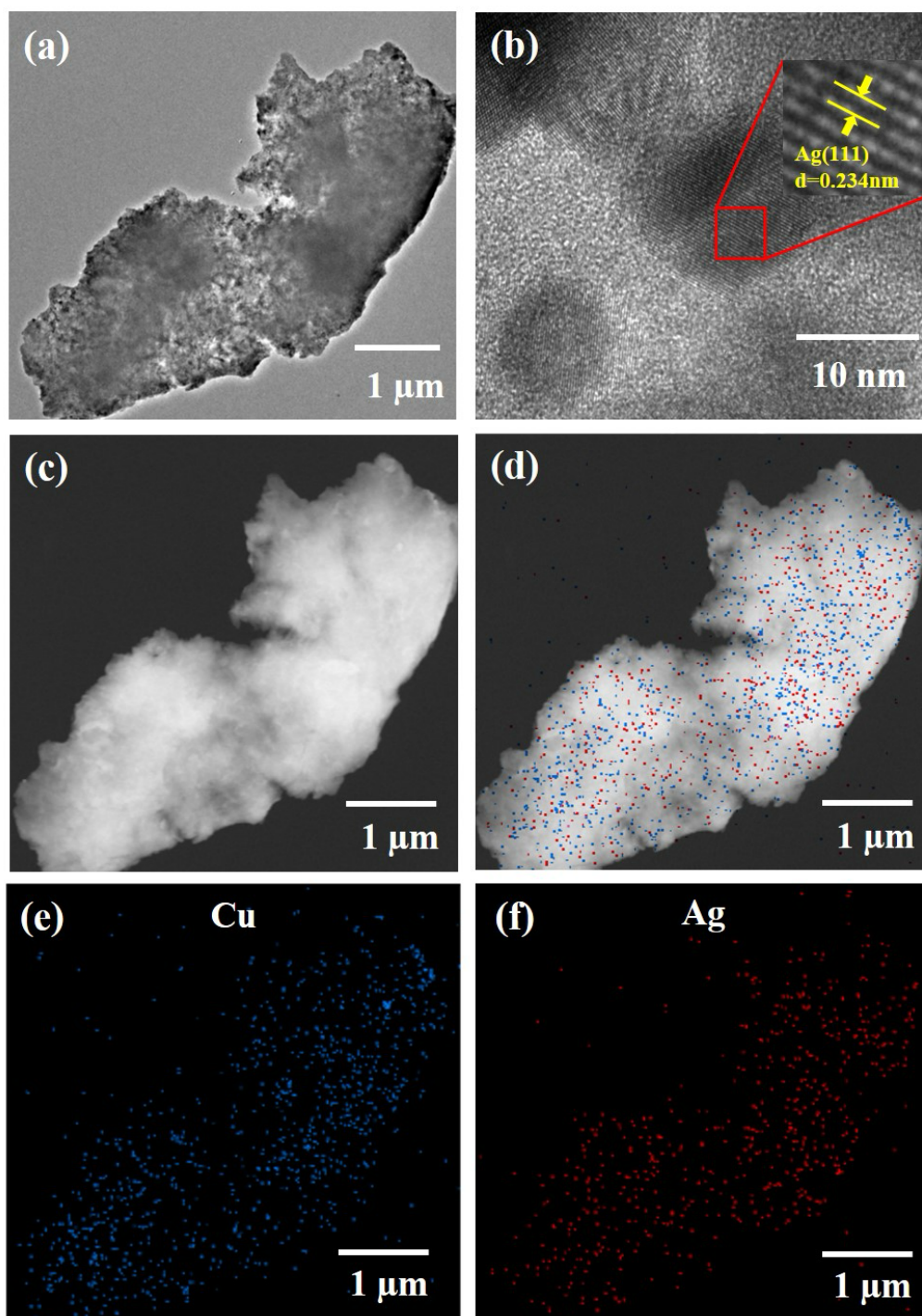


Figure S4. The TEM image of Ag@Cu-BTC₀ (a), (b) HRTEM for Ag d-spacing, (c) STEM image, and (d-f) STEM-EDS mapping results.

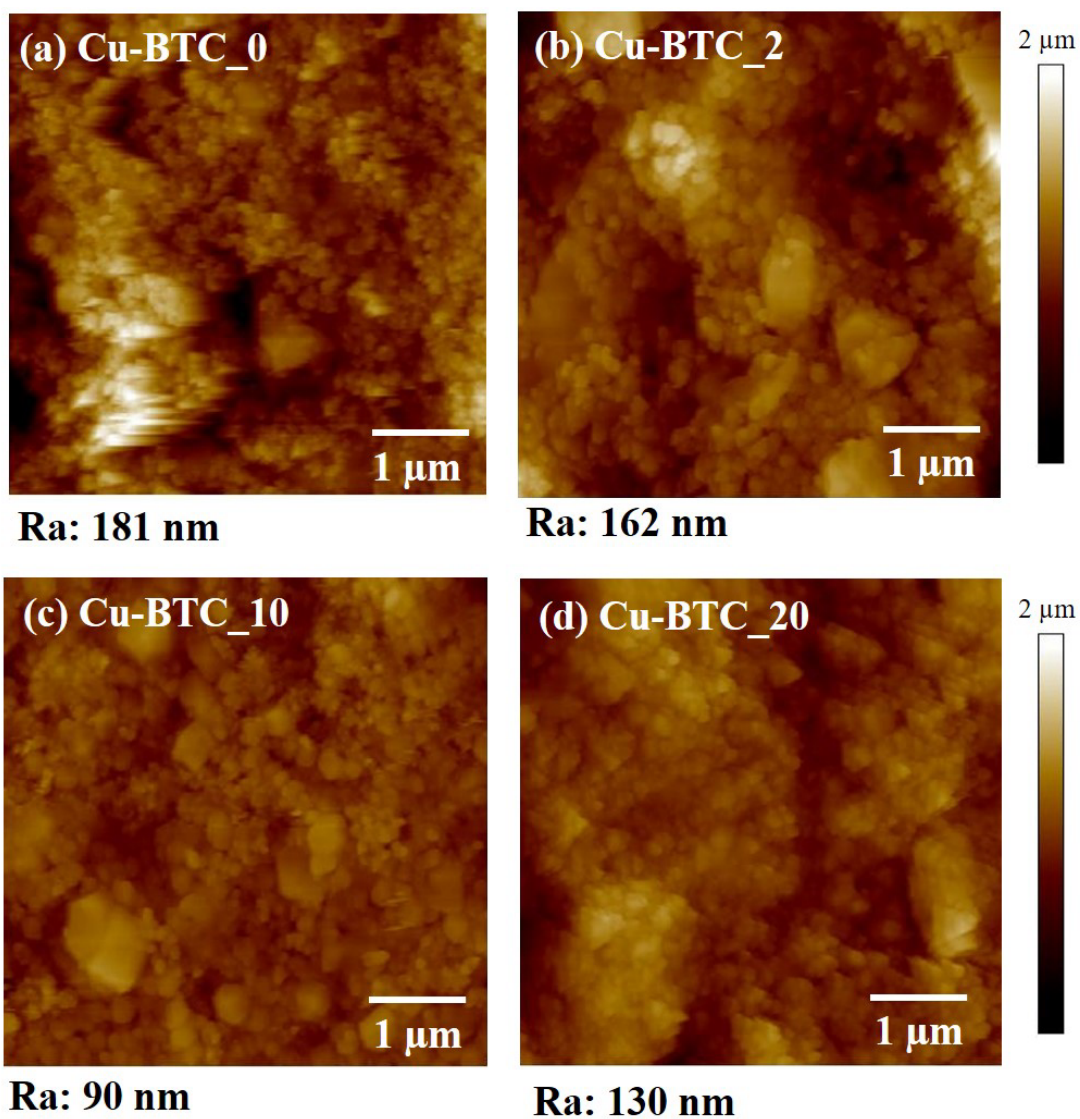


Figure S5. AFM scans of (a-d) Cu-BTC_0, 2, 10, 20 electrodes.

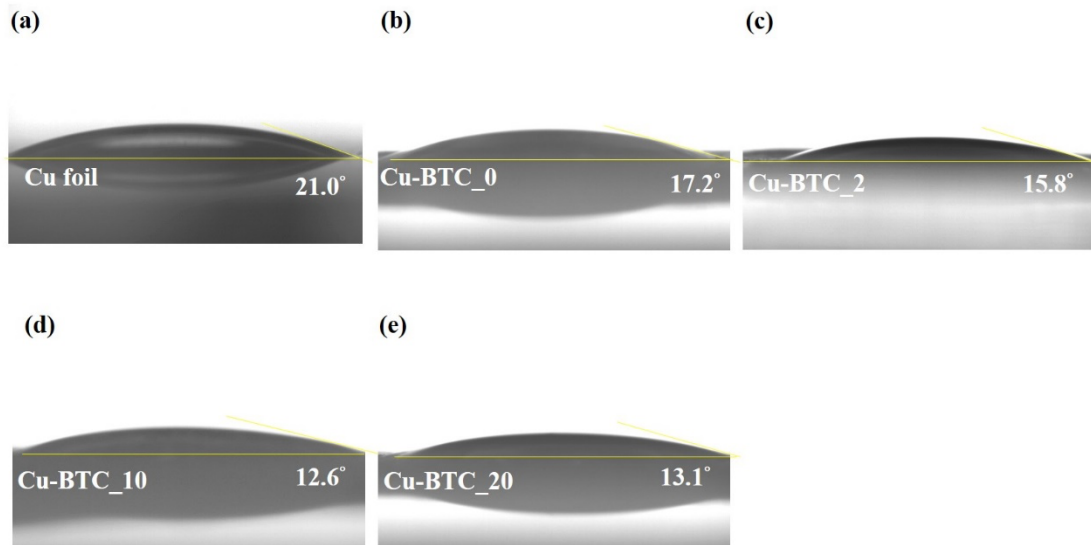


Figure S6. Contact angles of electrolyte on the (a) Copper foil, (b-e) Cu-BTC_0, 2, 10, and 20 electrodes.

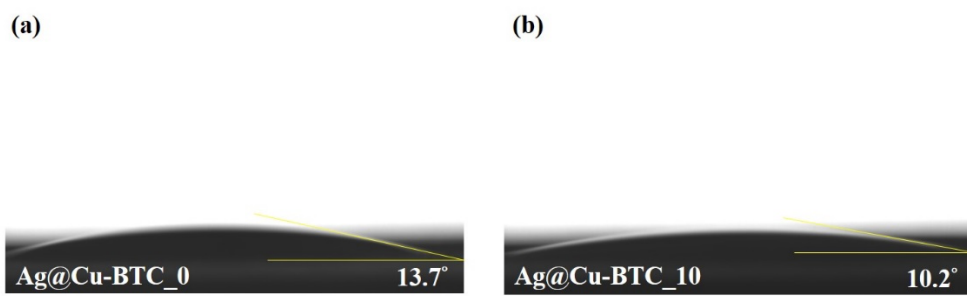


Figure S7. Contact angles of electrolyte on the (a) Ag@Cu-BTC_0 and (b) Ag@Cu-BTC_10 electrodes.

Reference

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