Supplementary Information (SI) for Journal of Materials Chemistry C. This journal is © The Royal Society of Chemistry 2024

Supporting Information

Mixed Metal Conductive MOFs Constructed from Trypan Blue Linked Metal Nodes: Characteristic Features and Electrochemical Performance

Shubhangi Shukla, Naveen Narasimhachar Joshi, Sachin Kadian, Siba Sahoo, Roger J. Narayan*

¹Joint Department of Biomedical Engineering, University of North Carolina and North Carolina State University, Raleigh, NC 27695, USA

²Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC 27695, USA

Contents

| Figure S1-S6 | SEM / EDS / elemental mapping |
|-----------------|-------------------------------|
| Figure S7 - 10 | XPS survey spectrum |
| Figure S11 | XRD profile |
| Figure S12 - 15 | CV curves |
| Figure S16 | Comparison with TTF-MOF |



Figure S1. SEM image (a) and EDS pattern (b) of P4.



Figure S2. Elemental mapping of Cu-Try-MOF. Copper is homogeneously distributed; oxygen, carbon, and nitrogen are localized in specific areas within the crystal.



Figure S3. Elemental mapping of the Cu-Co-Try-MOF. Copper, oxygen, and carbon are relatively more distributed; cobalt and nitrogen are localized in specific areas within the framework.



Figure S4. Elemental mapping of the Cu-Zn-Try-MOF. Copper is homogeneously distributed; zinc, oxygen, carbon, and nitrogen are localized in specific areas within the framework.



Figure S5. Elemental mapping of the Cu-Er-Try-MOF. Copper is homogeneously distributed; erbium, oxygen, carbon, and nitrogen are localized in specific areas within the framework.



Figure S6. Elemental mapping of the Cu-Yb-Try-MOF. Copper is homogeneously distributed; ytterbium, oxygen, carbon, and nitrogen are localized in specific areas within the framework.



Figure S7. Survey spectrum of P1.



Figure S8. Survey spectrum of P2.



Figure S9. Survey spectrum of P3.



Figure S10. Survey spectrum of P4.



Figure S11. XRD pattern of P4.



Figure S12. CV of the Co-Try MOF over the scan rate range of 0.01 - 0.5 V/s.



Figure S13. CV of the Zn-Try MOF over the scan rate range of 0.01 - 0.5 V/s.



Figure S14. CV of the Er-Try MOF over the scan rate range of 0.01 - 0.5 V/s.



Figure S15. CV of the Yb-Try MOF over the scan rate range of 0.01 - 0.5 V/s.



Figure S16. (a) CV of cobalt and zinc-based TTF linked MOFs, and (b) comparison of HER responses of the TTF MOF with the Trypan blue MOFs.