

## Supporting Information

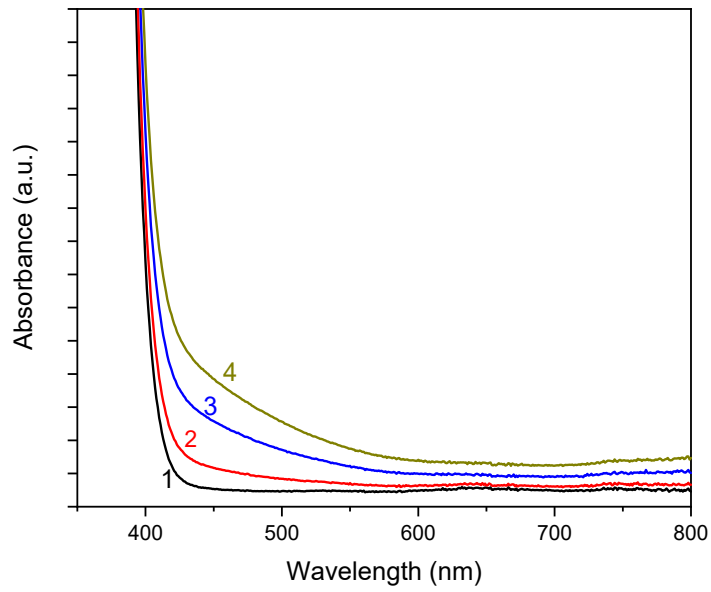
### **Visible light active binary metal ions containing functional triazine metallopolymers as a stable p-type photo-electrocatalyst in protic electrolyte**

Prashanth Vishwa<sup>1</sup>, Charles Babbet<sup>1</sup>, Bhargav Reddy<sup>1</sup>, Debabrat Kotoky<sup>1</sup>, Sarada K  
Gopinathan<sup>1</sup>, Iranna Udachyan<sup>2</sup>, Vishwanath R. S<sup>2</sup>, and Sakthivel Kandaiah<sup>1\*</sup>

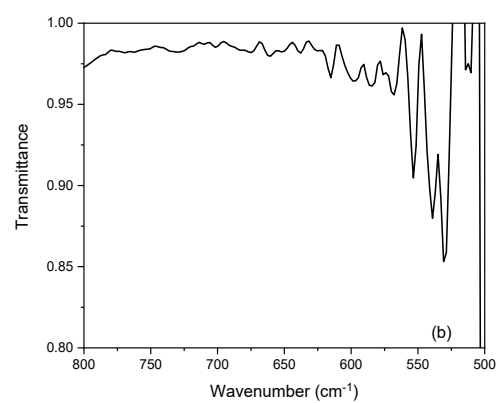
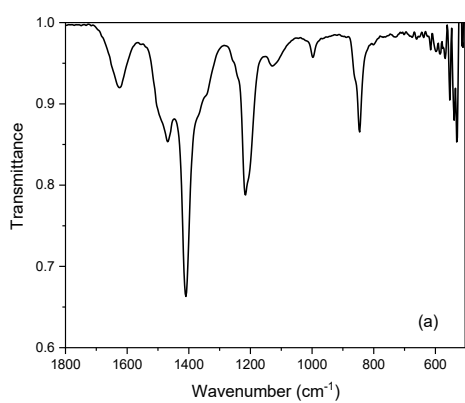
<sup>1</sup>Department of Chemistry, School of Applied Sciences, REVA University, Bangalore,  
Karnataka-560064, India.

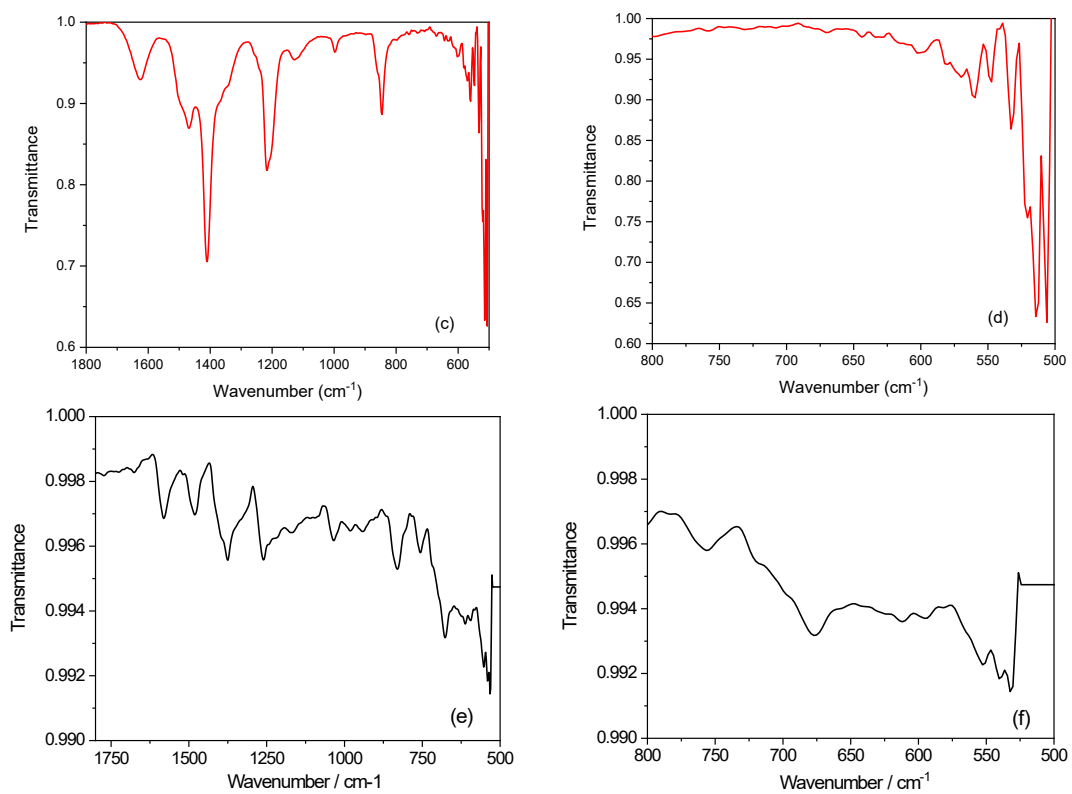
<sup>2</sup>Department of Chemical Sciences and the Centers for Radical Reactions and Materials  
Research, Ariel University, Ariel, 4077625 Israel.

\*Corresponding author Email: sakthivel@reva.edu.in, phone: 0091-9650712587

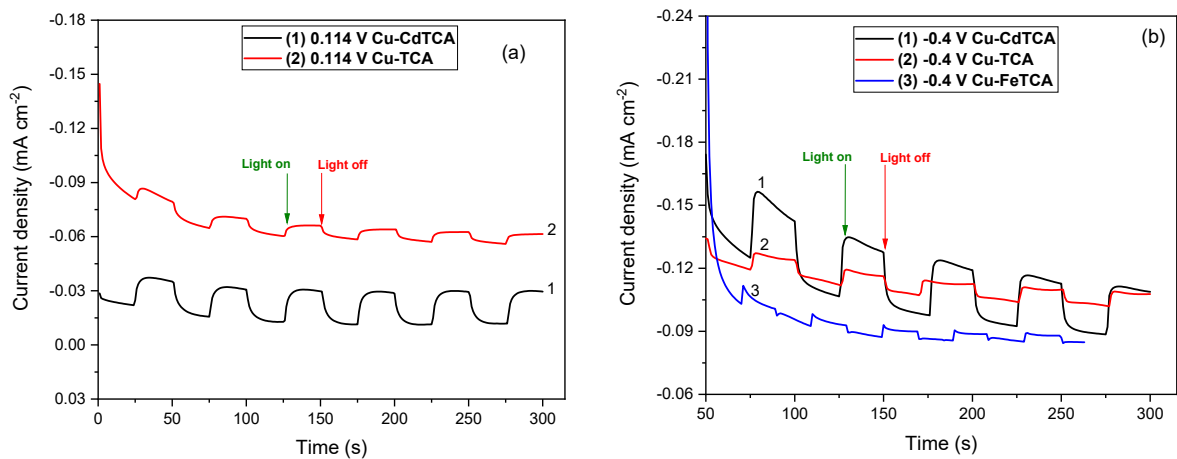


**Fig. S1.** UV-Vis spectra of 15 % TCA (1) and TCA with different concentrations of  $\text{CuSO}_4$  solution. (2) 20  $\mu\text{l}$  of 0.05 M  $\text{CuSO}_4$ , (3) 60  $\mu\text{l}$  of 0.05 M  $\text{CuSO}_4$ , (4) 100  $\mu\text{l}$  of 0.05 M  $\text{CuSO}_4$ .

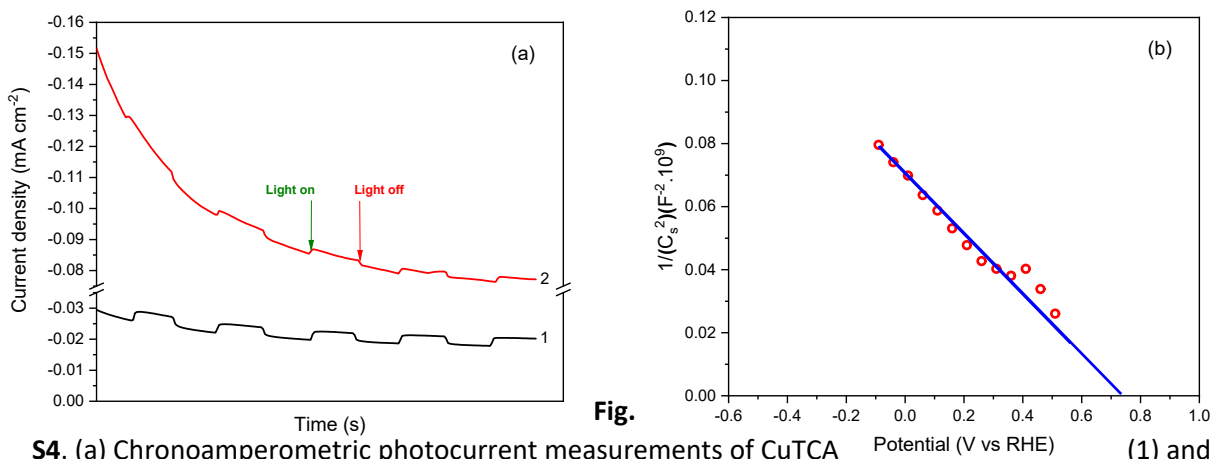




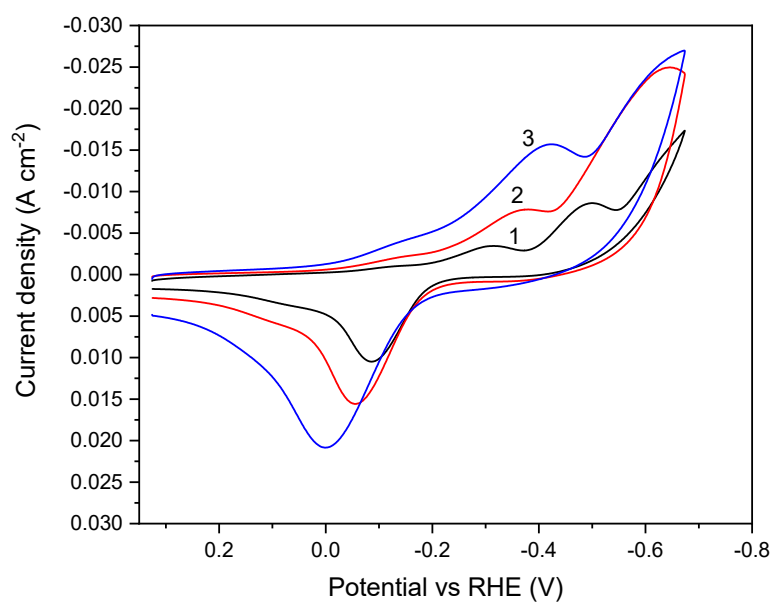
**Fig. S2.** IR spectra of (a) 15 % Trithio cyanuric acid (TCA), (b) Expanded view of TCA, (c) Cd<sup>2+</sup> containing 15 % TCA (d) Expanded view of Cd-TCA, (e) Cu-CdTCA thin film, and (f) Expanded view of thin film Cu-CdTCA.



**Fig. S3.** Chronoamperometric photocurrent measurements of (a) CuTCA and Cu-Cd TCA in 0.5 M  $\text{H}_2\text{SO}_4$  at 0.114 V vs RHE (b) CuTCA, Cu-Cd TCA and Cu-FeTCA in 0.5 M  $\text{H}_2\text{SO}_4$  at -0.185 V vs RHE. CuFeTCA show relatively lower photocurrent compared to CuTCA and Cu-CdTCA.



**S4.** (a) Chronoamperometric photocurrent measurements of CuTCA (1) and Cu-Cd TCA (2) in 0.5 M  $\text{Na}_2\text{SO}_4$  at 0.31 V vs RHE. (b) Mott-Schottky plot of Cu-CdTCA in 0.5 M  $\text{Na}_2\text{SO}_4$  at 10000 Hz frequency.



**Fig. S5.** CV of CuCdTCA in 0.5 M Na<sub>2</sub>SO<sub>4</sub> at a scan rate of 50 mV (1), 100 mV (2), and 250 mV (3).