

# Resurgence of DSCs with copper electrolyte: A detailed investigation of the interfacial charge dynamics in comparison with cobalt and iodine

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Table S1. *J-V* parameters at various light intensities.

	Light Intensity	$V_{oc}$ (mV)	$J_{sc}$ (mAcm <sup>-2</sup> )	FF	Efficiency (%)
$I_3^-/I^-$	1 Sun	783	12.28	0.60	5.79
	0.5 Sun	761	6.31	0.66	6.32
	0.1 Sun	709	1.17	0.73	6.07
$[Co(bpy)_3]^{2+/3+}$	1 Sun	868	7.42	0.70	4.52
	0.5 Sun	839	5.53	0.58	5.36
	0.1 Sun	771	1.54	0.52	6.23
$[Cu(dmp)_2]^{1+/2+}$	1 Sun	902	12.66	0.60	6.82
	0.5 Sun	888	7.34	0.62	8.13
	0.1 Sun	795	1.49	0.60	7.14

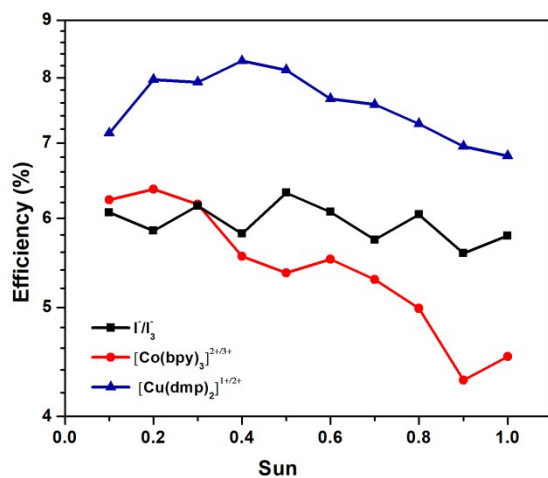


Figure S1. Efficiency at various light intensities employing  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes.

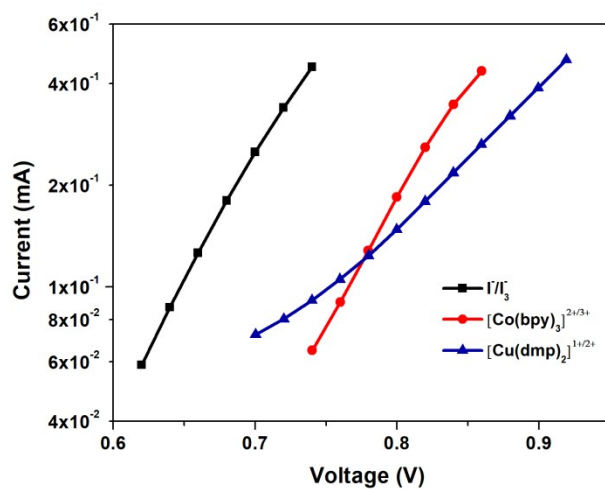


Figure S2. Dark current from EIS.

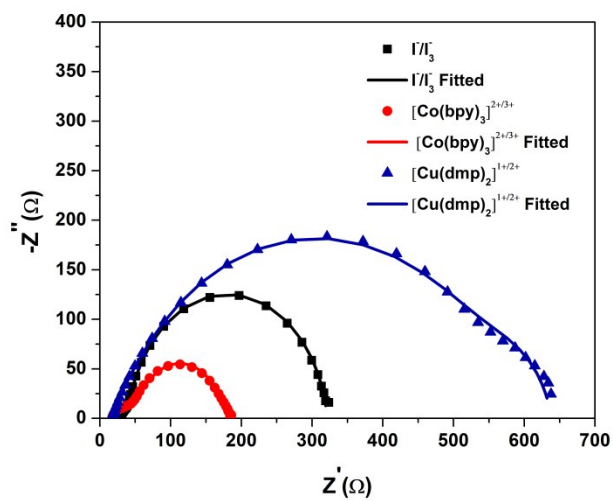


Figure S3. Nyquist plot of  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes.

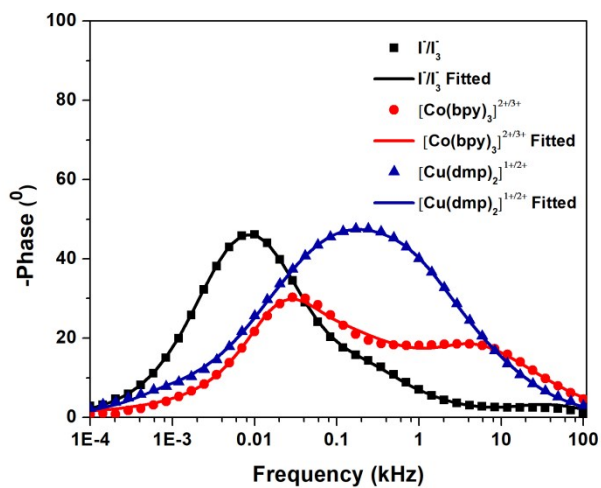


Figure S4. Bode plot of  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes.

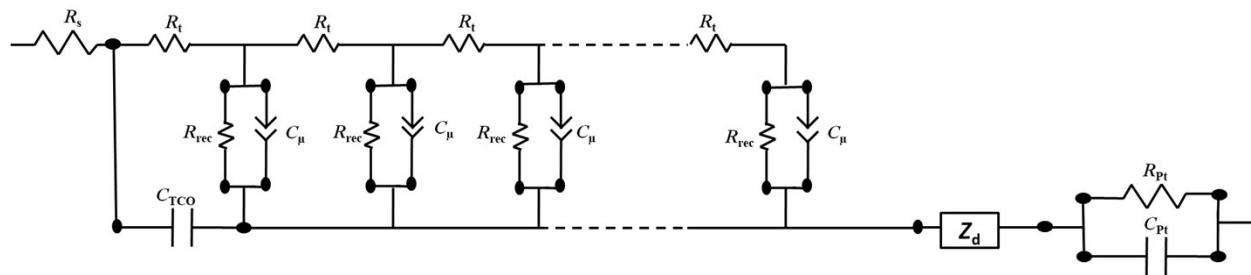


Figure S5. Equivalent circuit for EIS fitting.

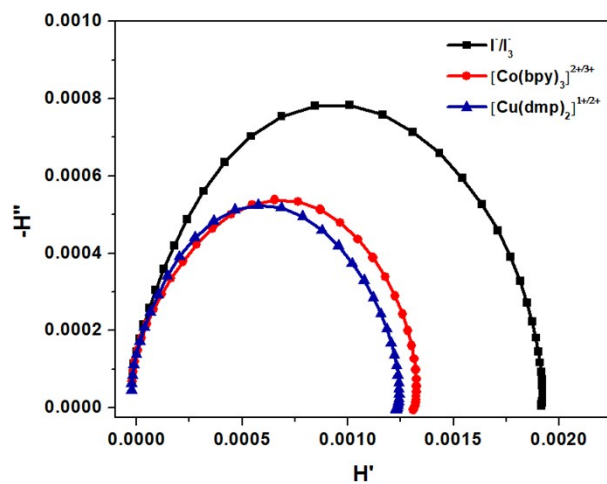


Figure S6. Nyquist plot for  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes obtained from IMPS measurement.

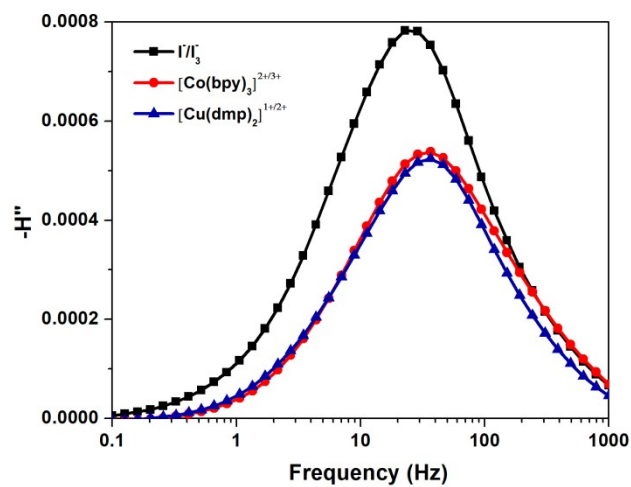


Figure S7. Bode plot of  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes obtained from IMPS measurement.

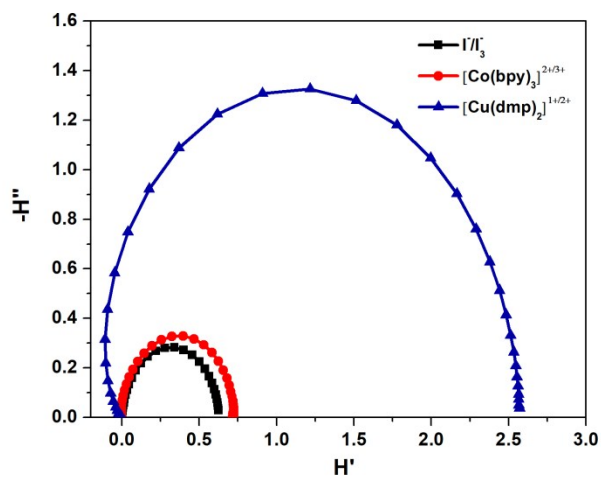


Figure S8. Nyquist plot of  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes obtained from IMVS measurement.

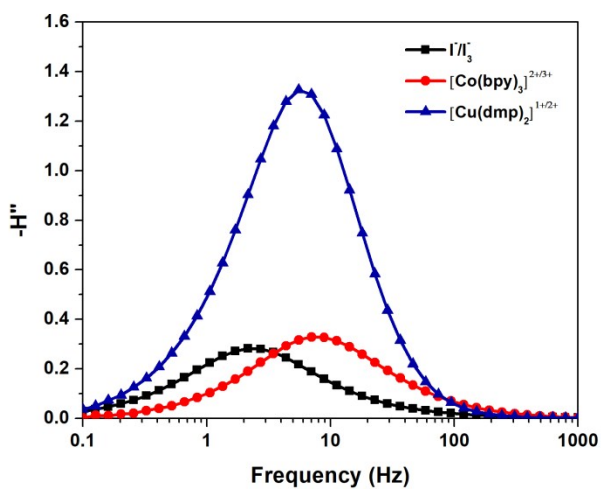


Figure S9. Bode plot of  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes obtained from IMVS measurement.

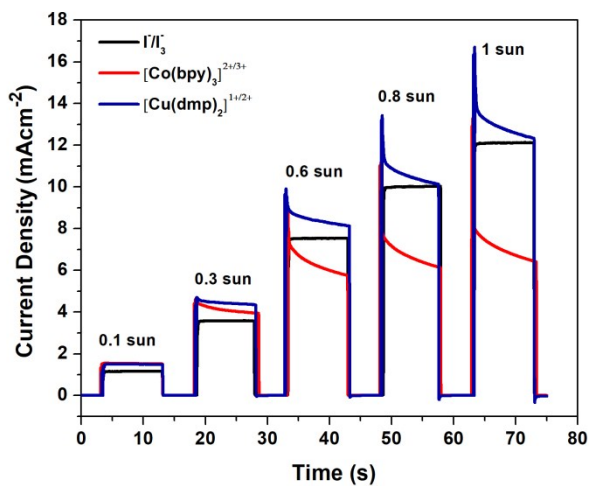


Figure S10. Current Transients of  $I^-/I_3^-$ ,  $[Co(bpy)_3]^{2+/3+}$  and  $[Cu(dmp)_2]^{1+/2+}$  electrolytes at various light intensities.