Electronic Supplementary Material (ESI) for Dalton Transactions.

γ-CuI from Ionic Liquids/Poly(Ionic liquid)s Precursor with Controllable Morphologies and Improved Photocatalytic Performance

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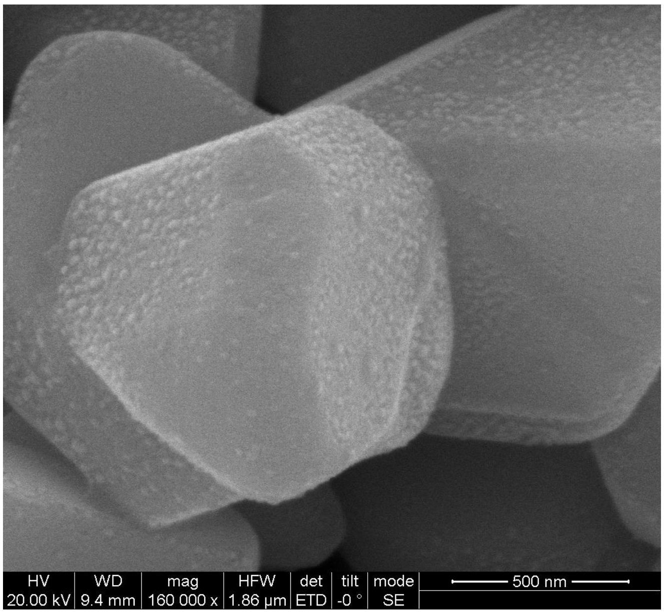

Figure S1. The close inspect of SEM image of CuI nanocrystals.

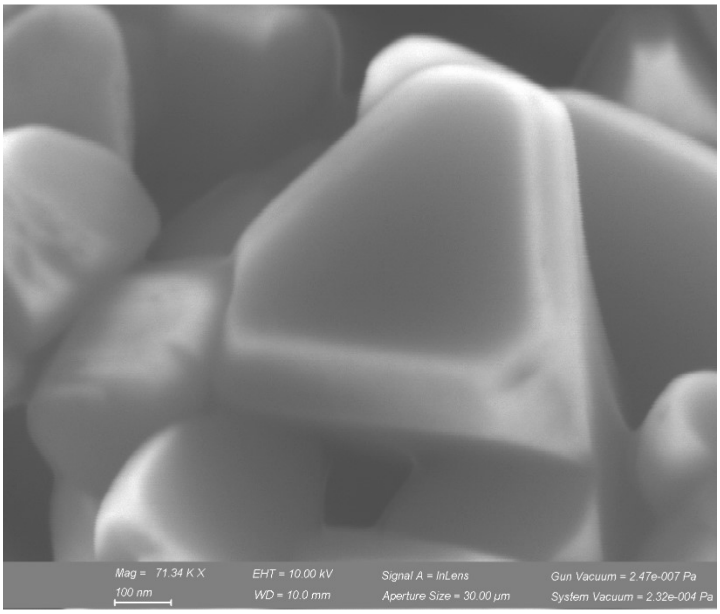

Figure S2. SEM image of CuI nanocrystals from 1-butyl-3-methylimizolium iodine precursor.

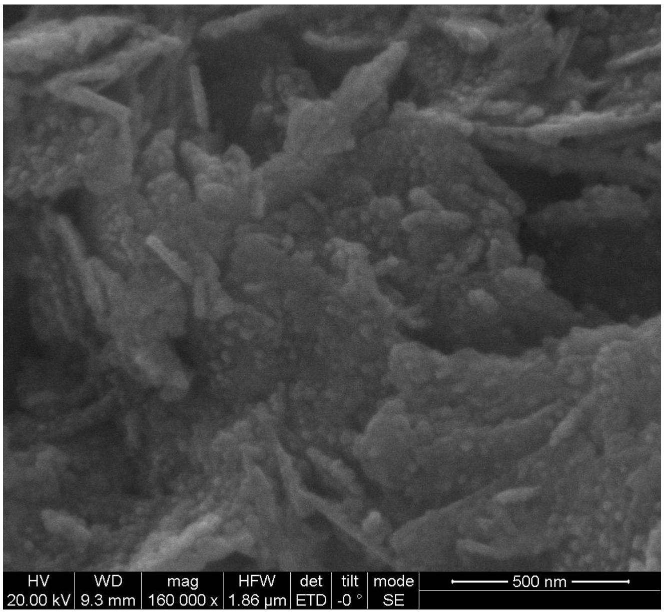

Figure S3. The close inspect of SEM image of CuI nanoplates.

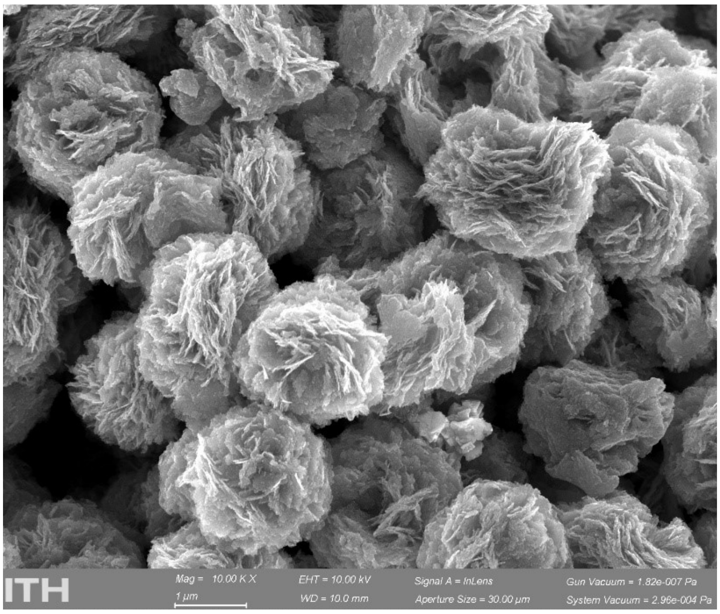

Figure S4. The SEM image of CuI nanoflowers.

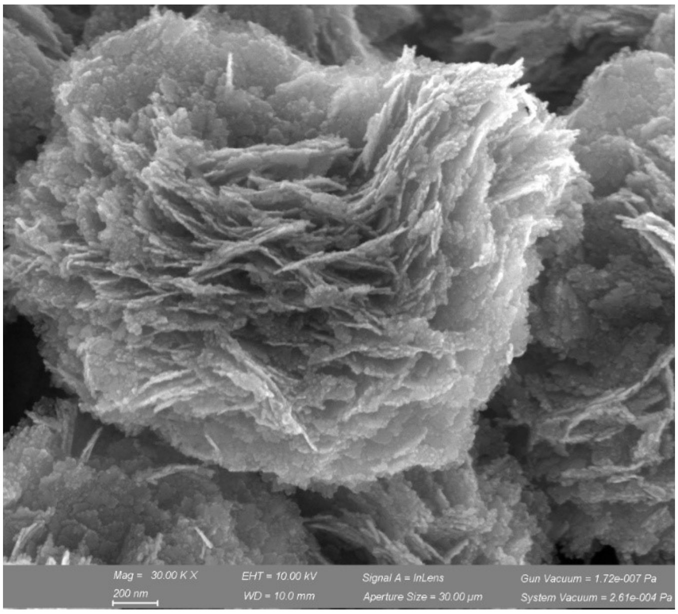

Figure S5. The close inspect of SEM image of CuI nanoflowers.

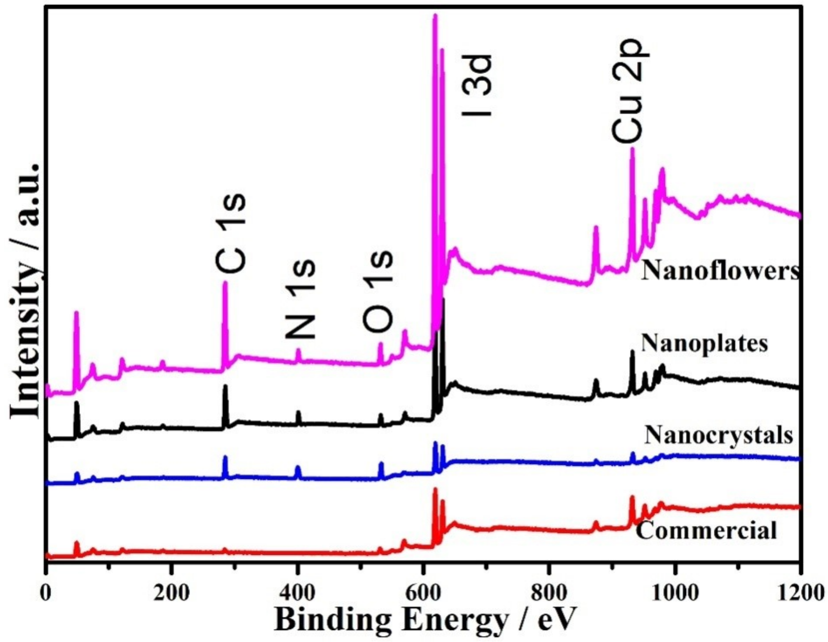

Figure S6. XPS survey spectra for commercial CuI and IL/PILs-controlled CuI.

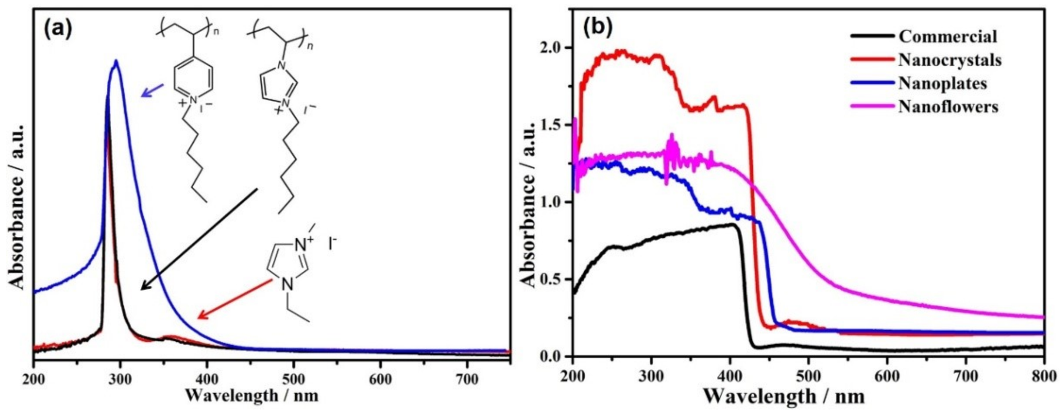

Figure S7. Ultraviolet-visible (UV-vis) spectra for the used IL/PILs, with adsorption below 350 nm. Thus, pure IL/PILs do not contribute to the optical properties of IL/PILs-mediated CuI samples.

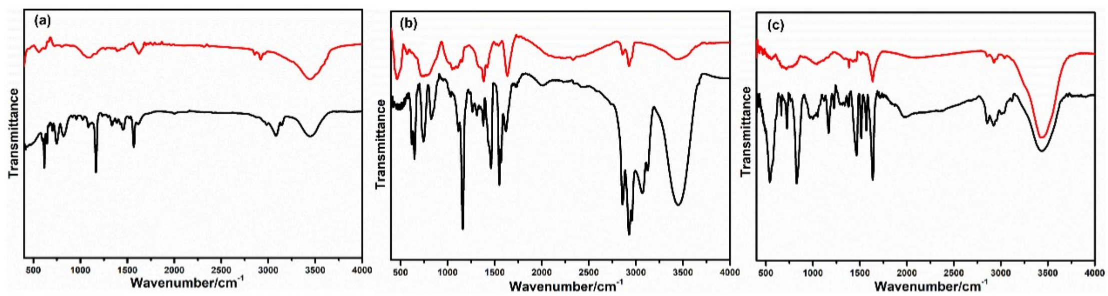

Figure S8. FT-IR spectra for CuI nanocrystals (a), CuI nanoplates (b), and CuI nanoflowers (c), respectively (red line). All samples were compared to the FT-IR spectra of corresponding IL/PILs (black line).

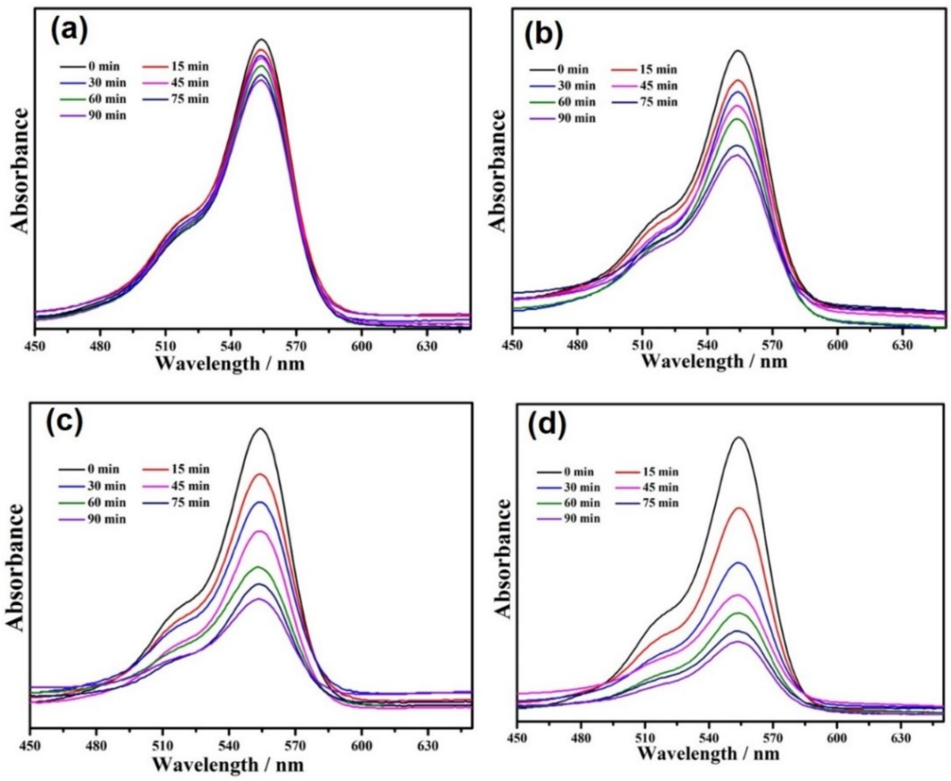

Figure S9. UV-vis absorption spectra of RhB solutions after treated with CuI samples at different time intervals, commercial CuI a); CuI nanocrystals b); CuI nanoplates c) and CuI nanoflowers d).

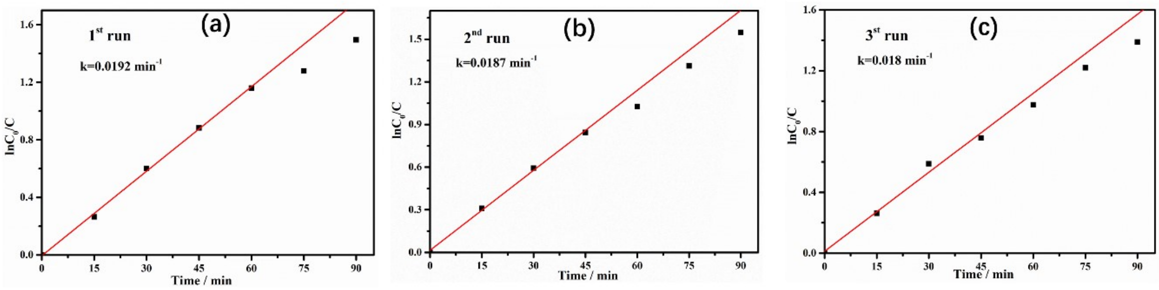

Figure S10. $\ln(C_0/C)$ *vs.* time plots for photodegradation of RhB with CuI nanoflowers for three catalytic cycles.

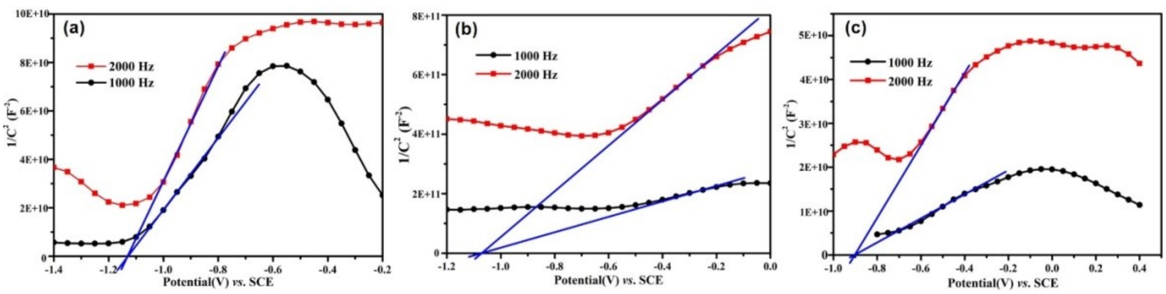

Figure S11. Mott-Schottky plots for CuI (a) nanocrystals, (b) nanoplates and (c) nanoflowers. The ac amplitude is 50 mV and the frequency is in the range 1000-2000 Hz.