

Photocathode-assisted Redox Flow Desalination

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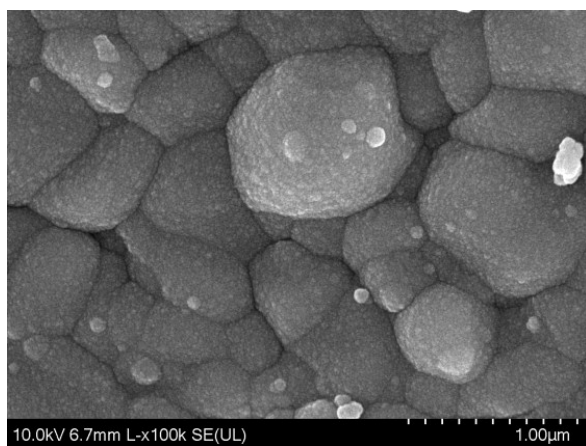


Figure S1: Surface morphology of CdS/CZTS.

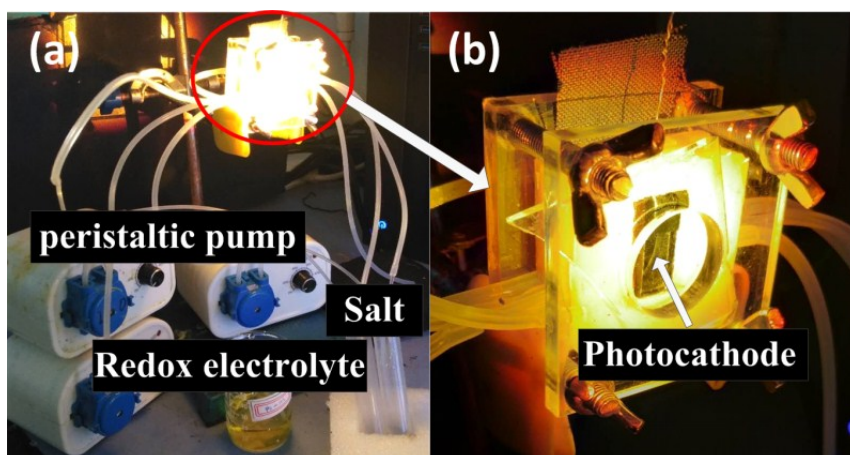


Figure S2: Photograph of photocathode electrochemical desalination device set-up with illumination.

Figure S2 demonstrates the photograph of photocathode photoelectrochemical desalination device set-up with illumination. The two salt seeds and one electrolyte solution are circulative driven by the peristaltic pumps, individually. Figure S2b is an enlarged view of the designed desalination device. It consists of four silicon plates: two as the redox streams (RS) and the other two as salt streams (SS). Two acrylic sheets are used to fix the desalination device. CdS/CZTS is served as photocathode (PC) to absorb light to produce photo-generated electron and carbon cloth coated with Pt nanoparticles is used as the counter electrode (CE) to form a complete circuit. The configuration sequence is same as Figure 2a, as shown below:



where “|” denotes the separation of components, and “||” represents the membranes, i.e., anion exchange membrane (AEM) or cation exchange membrane (CEM). One

AEM was inserted between the two salt streams, two CEMs were placed between redox streams and salt streams