

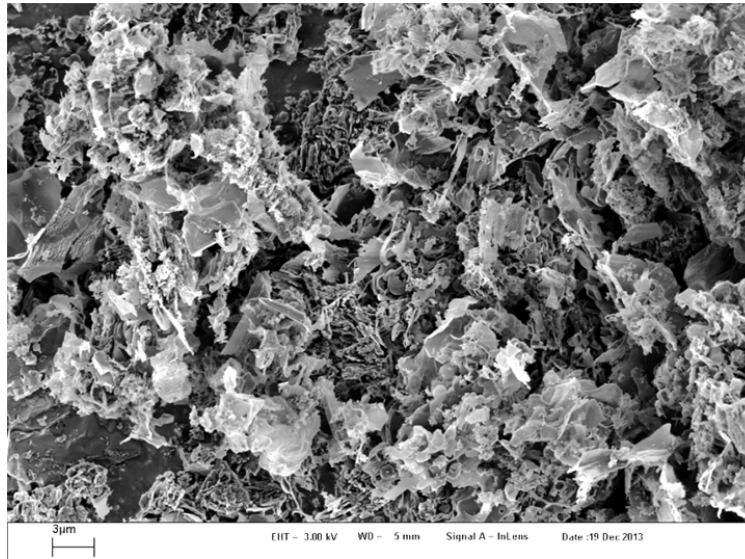
## Supporting Information

### **Electrophoretic Deposition of Carbon Nitride Layers for Photoelectrochemical Applications**

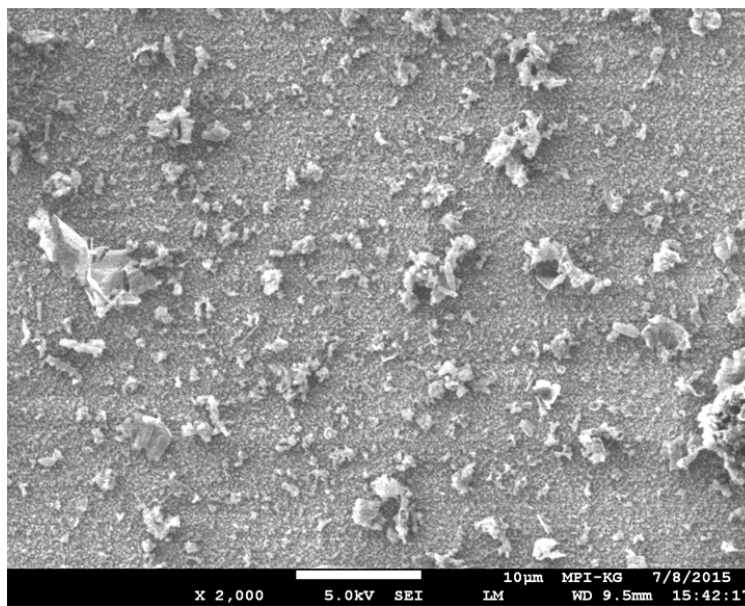
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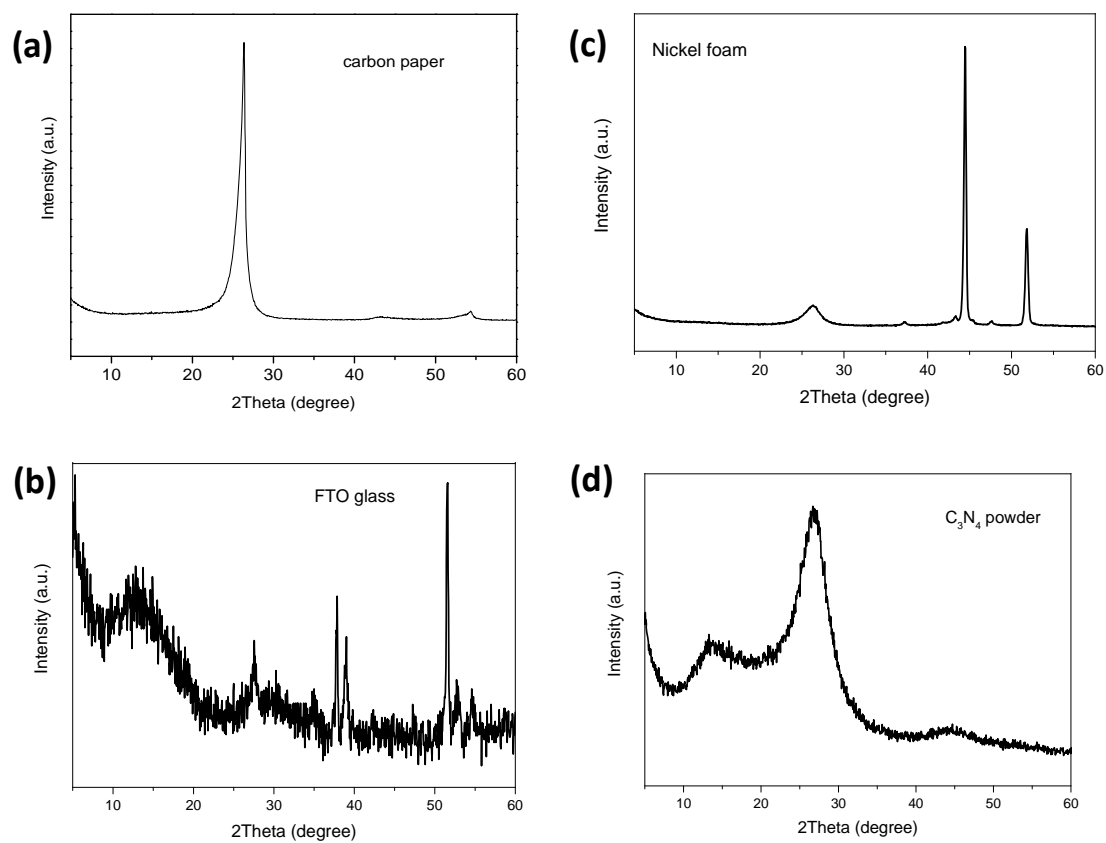
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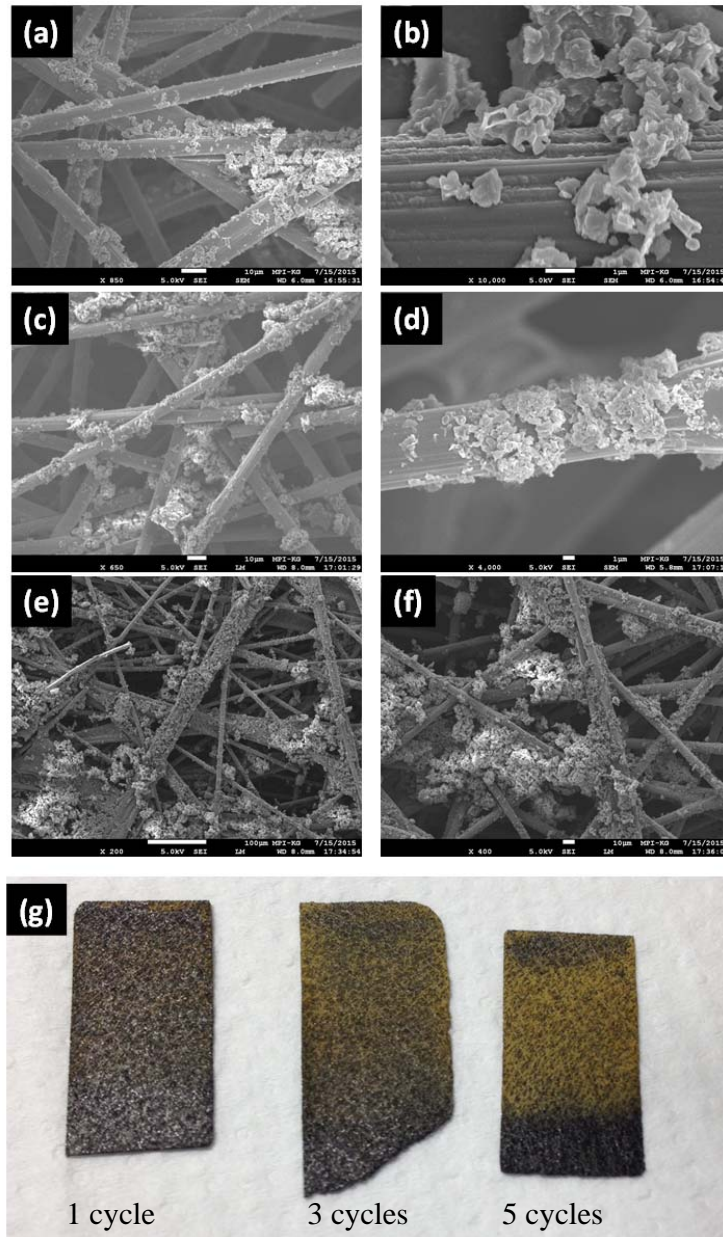
**Figure S1.** SEM image of the  $C_3N_4$  powder ( $CMB_5$ ) used for EPD.



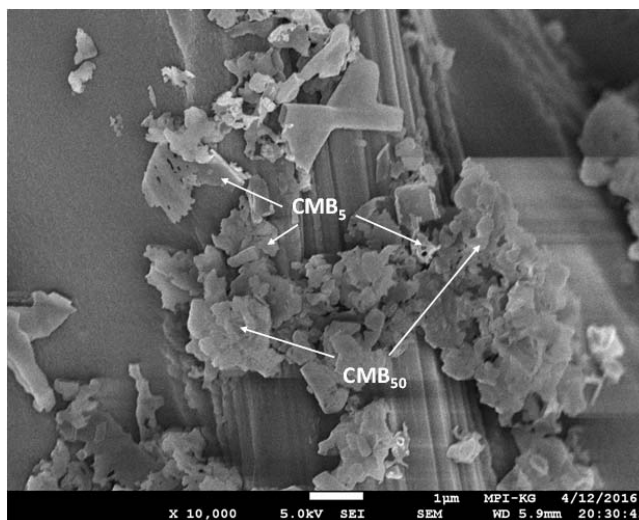
**Figure S2.** Top-view SEM image of  $CMB_5$  deposited on FTO.



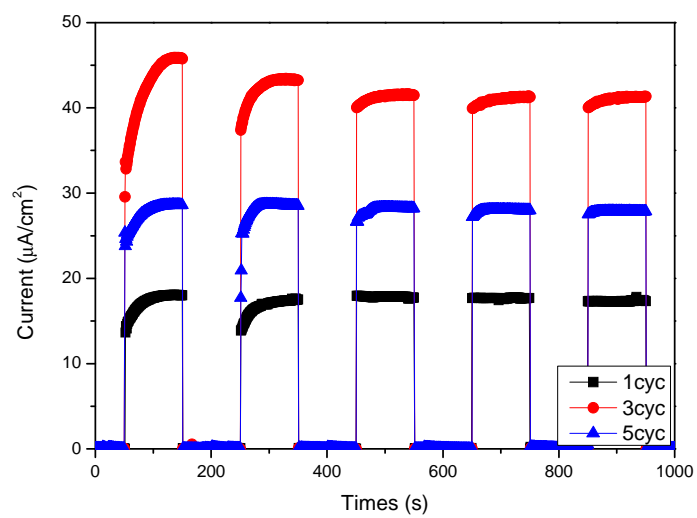
**Figure S3.** XRD pattern of (a) carbon paper, (b) FTO glass and (c) nickel foam with  $C_3N_4$  deposited on top using EPD. (d) XRD pattern of the  $C_3N_4$  powder without sonication treatment.



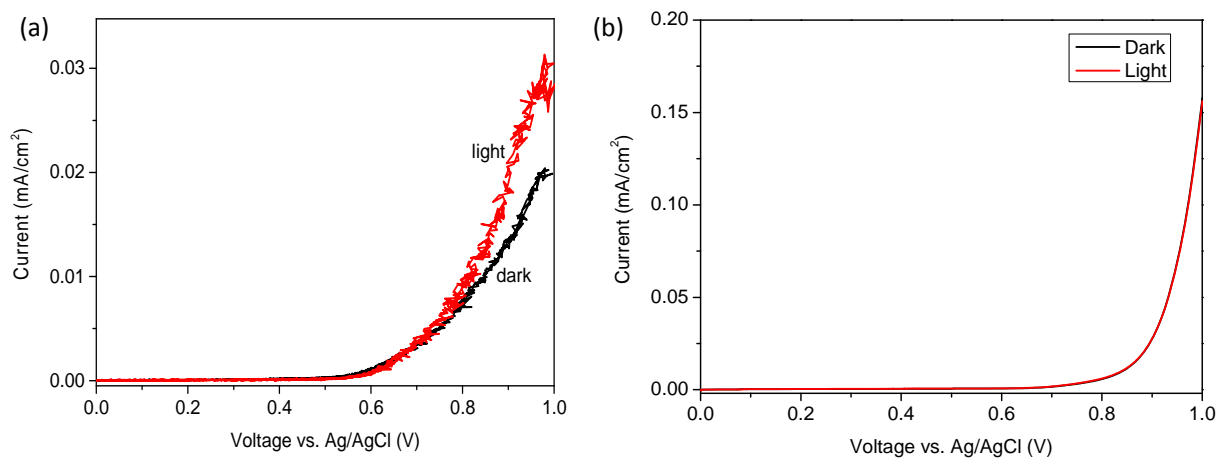
**Figure S4.** SEM images of CMB<sub>50</sub> deposited on carbon paper for (a, b) 1 cycle, (c, d) 3 cycles and (e, f) 5 cycles. (g) Photograph of the corresponding carbon paper pieces. The duration of each cycle was one hour.



**Figure S5.** SEM image of the CMB<sub>5</sub>/CMB<sub>50</sub> electrode.



**Figure S6.** Transient photocurrent of the CMB<sub>5</sub> electrodes on carbon paper with 1, 3 and 5 EPD cycles.



**Figure S7.** LSV curves of (a) blank carbon paper and (b) blank FTO in dark and under illumination, scanning rate 20 mV/s in 1M KOH.