Supplementary Material (ESI) for Journal of Materials Chemistry


# Supporting Information

## Template-Free Solution Growth of Highly Regular, Crystal Orientation-Ordered $C_{60}$ Nanorod Bundles

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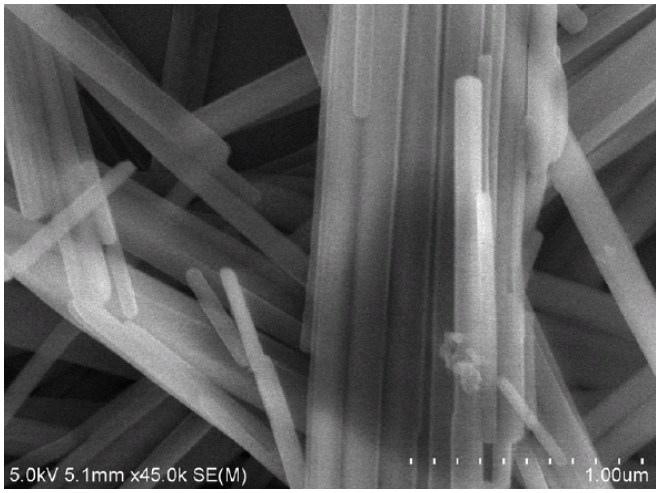


**Figure S1.** An SEM image shows that $C_{60}$ nanorods trend to stick together at the stage of initial precipitation at the liquid-liquid interface.

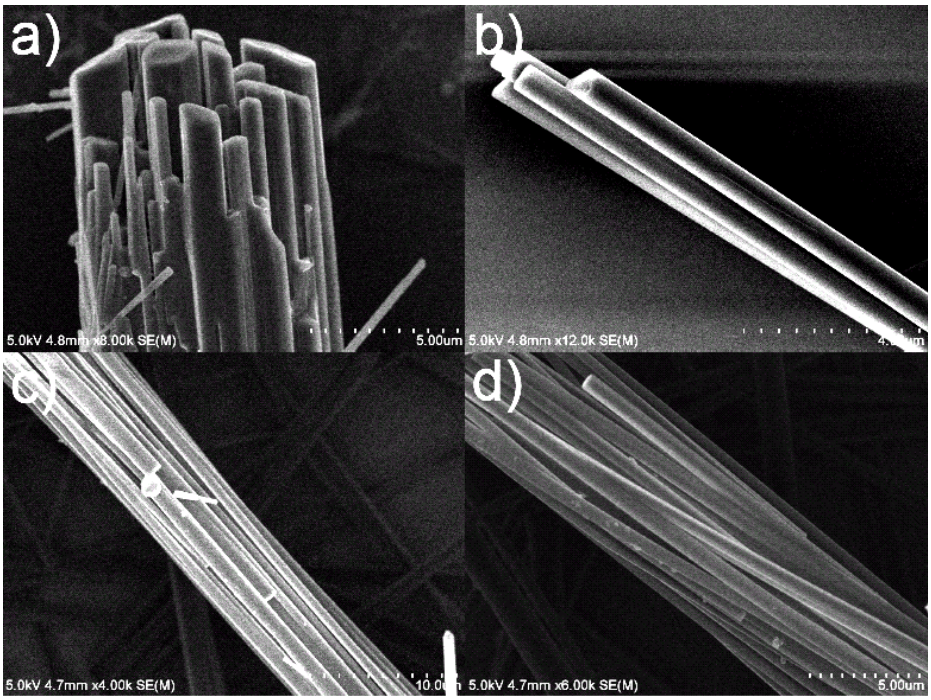


**Figure S2.** SEM images of $C_{60}$ nanorod bundles obtained in IPA/toluene system: a) top view, b), c) and d): different dimensions of $C_{60}$ nanorod bundles. These images demonstrate that even when m-xylene was changed to toluene, $C_{60}$ nanorods were still formed and they also tended to bundle together once water was added into the IPA phase.

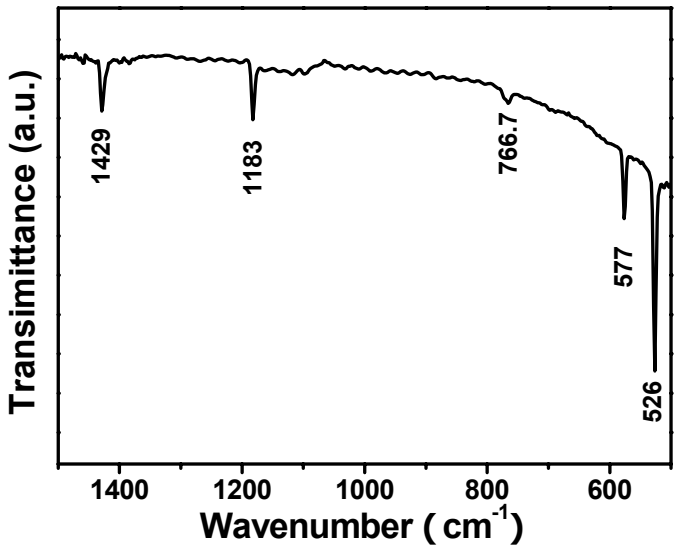


**Figure S3.** FTIR spectrum of $C_{60}$ nanorod bundles, which shows that $C_{60}$ molecules in the nanorod bundles were not polymerized.

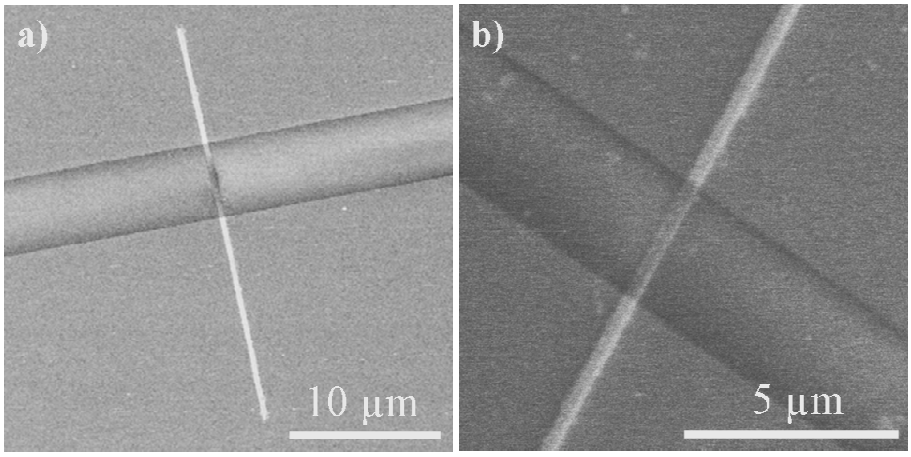


**Figure S4.** For the sake of comparison, photoswitches based on a single $C_{60}$ nanorod were also fabricated with different electrode configurations: Ag-Ag and Au-Au. (a) SEM image of Ag electrodes with a gap of 5 μm and a nanorod diameter of ~250 nm, and (b) SEM image of Au electrodes with a gap of 3 μm and a nanorod diameter of ~380 nm.

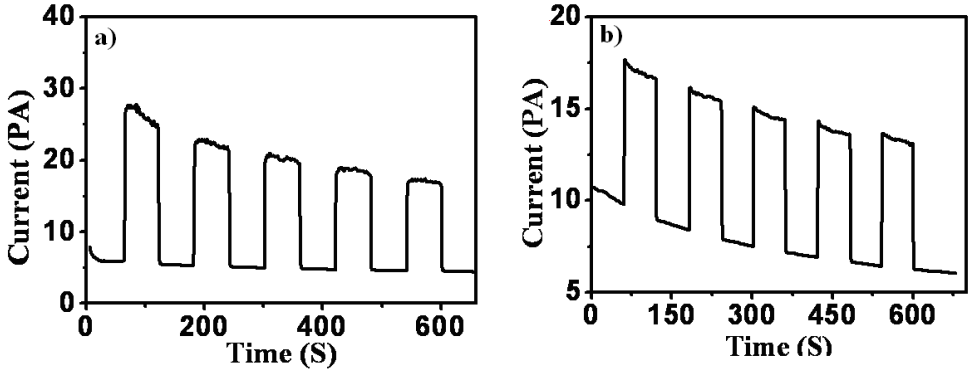


**Figure S5**. Photoresponse characteristics of the photoswitches fabricated from individual $C_{60}$ nanorods of Figure S4. (a) is Ag-Ag electrode and (b) is Au-Au electrode. Both kinds of photoswitches exhibited similar switching ratios, which are much less than 10, at least 2 orders of magnitude smaller than that of the $C_{60}$ nanorod bundles.