Supplementary Information

Hydrothermal Fabrication of Hierarchically Anatase TiO_2 Nanowire arrays on FTO Glass for Dye-sensitized Solar Cells

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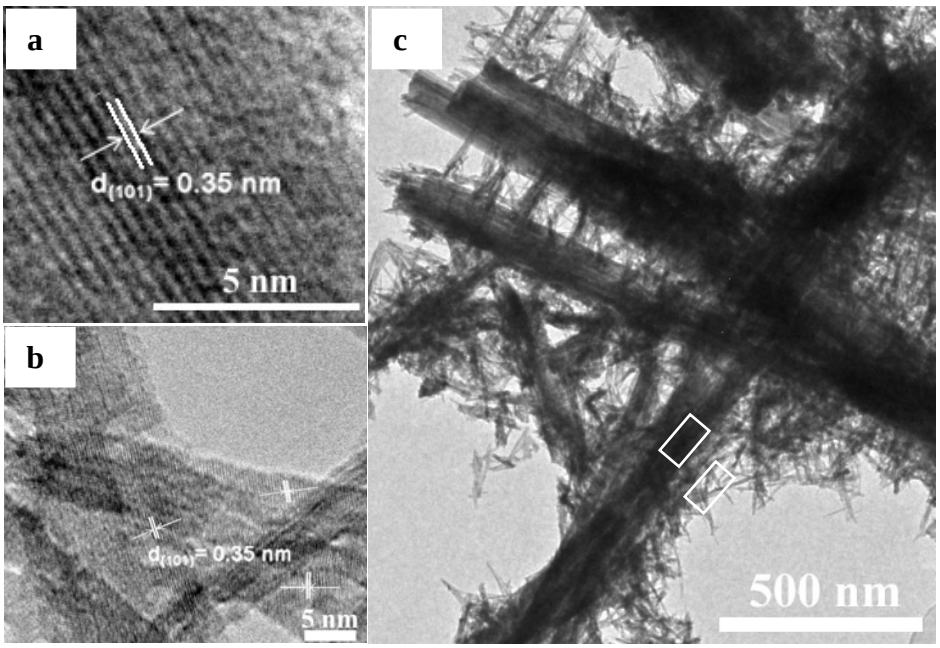
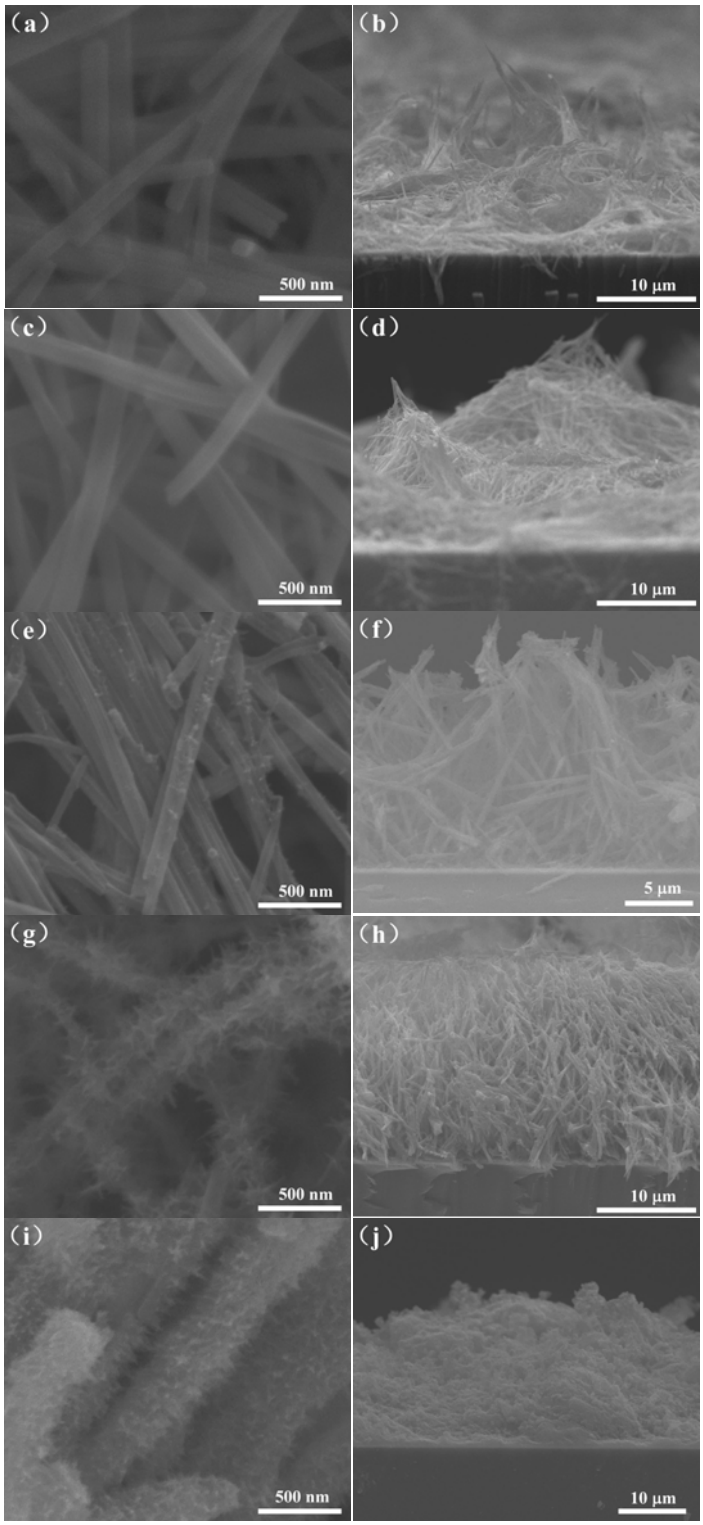
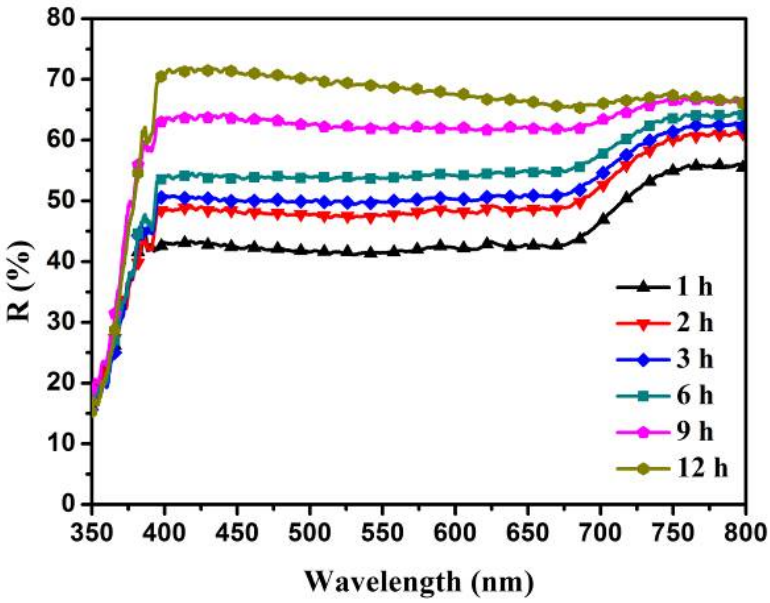


Supplementary Figure S1. HRTEM images of as-prepared hierarchical anatase TiO_2 nano-architecture arrays prepared by a hydrothermal reaction at 180 °C for 9 h on FTO glass. The HRTEM images of TiO_2 trunk (a) and branches (b) show the as-prepared samples are single crystalline anatase TiO_2. (c) Typical TEM images of a pile of as-prepared hierarchical anatase TiO_2 nano-architecture arrays indicate that large amounts of short TiO_2 nanorods branches are grown on the surface of TiO_2 nanowire trunk,which leads to an interesting hierarchical anatase TiO_2 nano-architecture arrays consisting of long TiO_2 nanowire trunk and short TiO_2 nanorod branches.



Supplementary Figure S2. **SEM images of evolution process of the hierarchical TiO_2 nanoarrays.** The images shows the as-prepared samples obtained by hydrothermal growth at 180 °C after1 h (a, b), 2 h (c, d), 3 h (e, f), 6 h (g, h) and 12 h (i, j), respectively,which presents a clear growth process from sparse smooth TiO_2 nanowire to dense hierarchical TiO_2 nanowire with numerous short nano-branches.



Supplementary Figure S3. **Diffuse reflectance spectra.** The reflectance spectra of the hierarchical TiO_2 nanoarray photoanodes prepared at different hydrothermal reaction time shows the significant improvement of light scattering capabilities for hierarchical TiO_2 nanoarrays photoanode when compared to smooth TiO_2 nanowires. And the light scattering capabilities of as-prepared samples increase along with the reaction time, which would be beneficial to facilitate the light-harvesting efficiency.