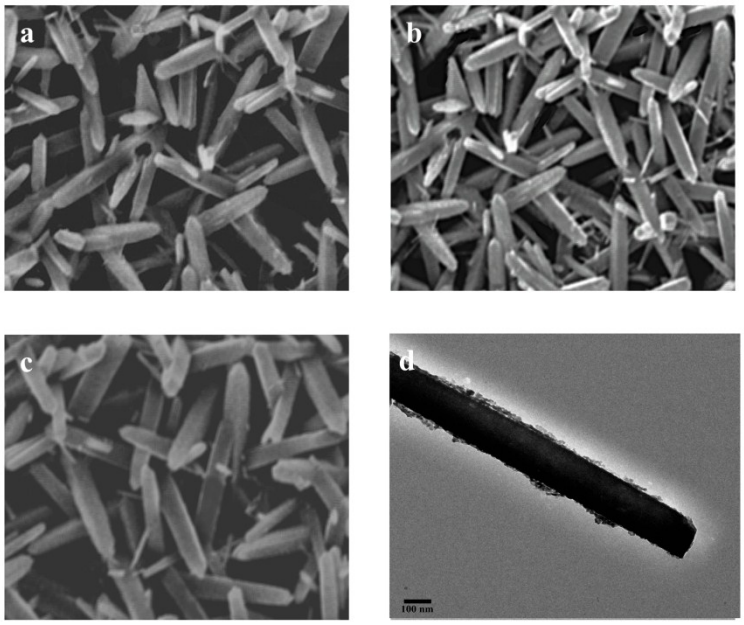
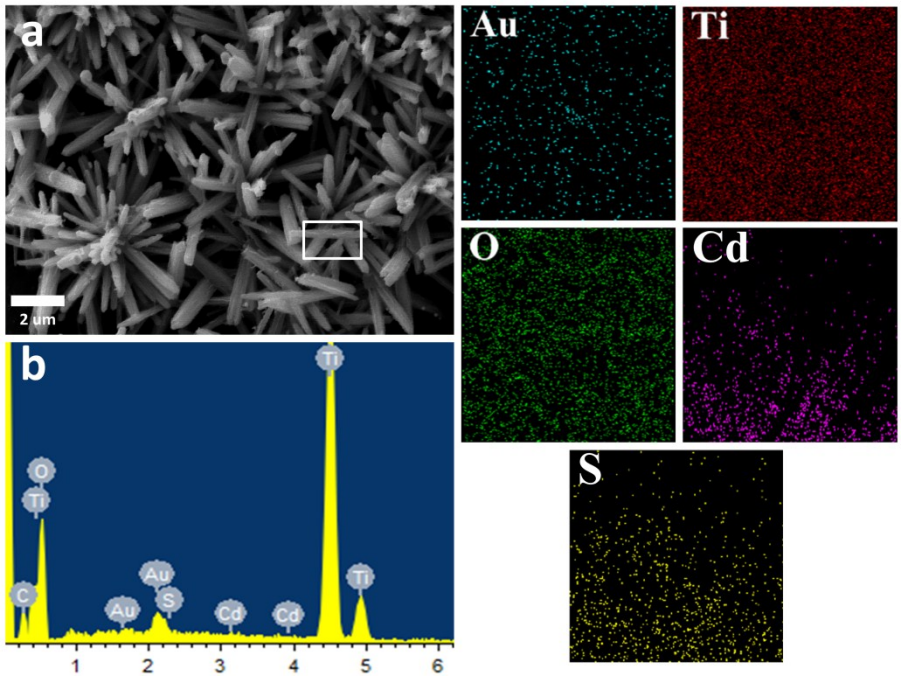
Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting Information

1. SEM images of (a) TiO_2, (b) Au-TiO_2, (c) CdS-Au-TiO_2. (d) TEM images of a single CdS-Au-TiO_2 nanorod. Scale bars: (a) (b) (c) 200nm



2. (a) the SEM image and the EDX-SEM mapping of CdS/Au/TiO_2, corresponding to panel S2a), (b) EDS profile of CdS/Au/TiO_2.



3. The minimum, in approximation, can be expressed by equations. As flows:

Au/TiO_2:

$$\frac{d\Delta C}{dr} = 0.1285r^4 - 1.6724r^3 + 7.1904r^2 - 10.7658r + 3.1693$$

CdS/Au/TiO_2:

$$\frac{d\Delta C}{dr} = -0.055r^4 + 0.956r^3 - 6.2061r^2 + 17.6508r - 17.329$$

Where ΔC is the D-value of concentration of the MB ($\Delta C = C_0 - C'$, C_0: initial concentration; C': termination concentration), and r is the intensity ratio of visible to UV light.

4. Schematic illustration of the charge transfer in UV-vis light irradiated Au/TiO_2 photocatalysis systems