

## Supporting Information

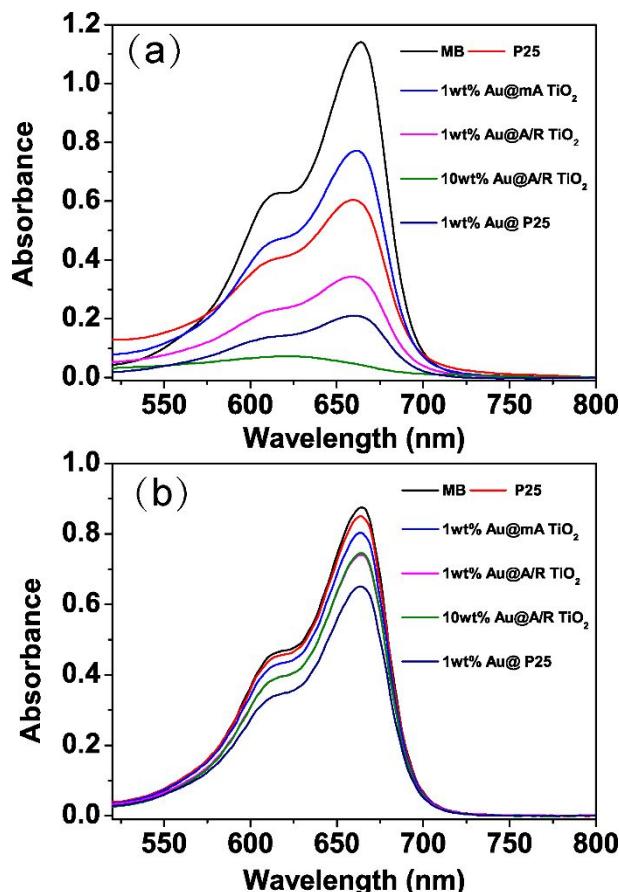
# Capturing the Long-Lived Photogenerated Electrons in Au/TiO<sub>2</sub> upon UV or Visible Irradiation by Time-Resolved Infrared Spectroscopy

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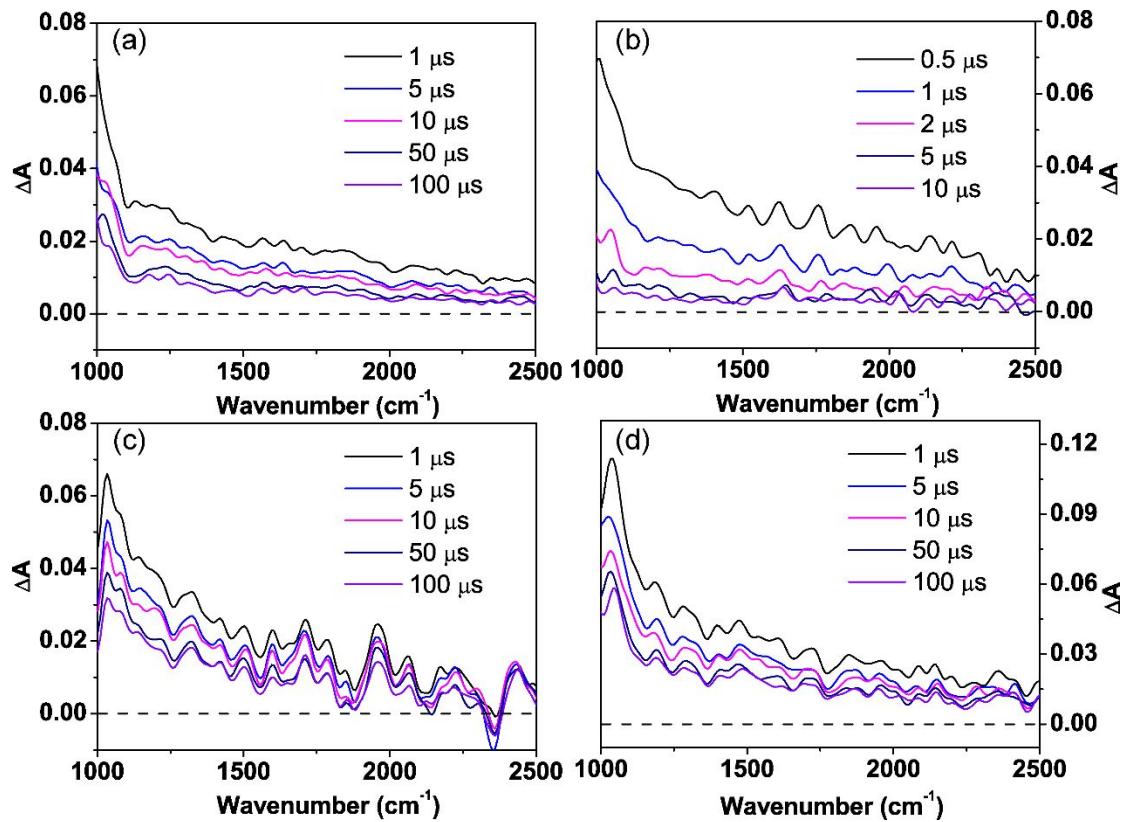
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**Figure S1.** UV-Vis absorption spectra of MB aqueous solution with P25 and Au/TiO<sub>2</sub> photocatalysts for a predetermined time: (a) after 355 nm laser irradiation, (b) after 532 nm laser irradiation.



**Figure S2.** Time-resolved IR absorption spectra of Au/TiO<sub>2</sub> recorded at typical delay times after 355 nm laser pulse irradiation. (a): 1wt% Au @ A/R TiO<sub>2</sub>; (b): 1wt% Au @ mA TiO<sub>2</sub>; (c): 10wt% Au @ A/R TiO<sub>2</sub>; (d): 1wt% Au @ P25.