Supplementary Information:

Photo-reduction enables catalysts regeneration in Fenton reaction on Fe₂O₃ decorated TiO₂ nanotube-based photocatalyst

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Figure S1. XPS of TNT(Pd). The ratio of Pd⁰⁺/Pd⁰ in TNT(Pd) was 55.73%.

Figure S2. Methyl orange degradation using H₂O₂ with no catalyst under visible light illumination.
Figure S3. (a) The MO degradation as a function of time using TNT(Bi$_2$O$_3$), TNT(Bi$_2$O$_3$)/Fe$_2$O$_3$ as catalysts in the presence of H$_2$O$_2$ under visible light illumination (with no “dark” label) and dark conditions. (b) The kinetic constants of MO degradation by using TNT(Bi$_2$O$_3$), TNT(Bi$_2$O$_3$)/Fe$_2$O$_3$ as catalysts. Inset in (b) is the corresponding –ln(C/C$_0$)-time plots.

Figure S4. The photocurrent when shining on TNT/Fe$_2$O$_3$ with visible light.
Figure S5. Photodegradation of methyl orange on TNT(Pd)/Fe$_2$O$_3$-KH570 with H$_2$O$_2$ addition under visible light illumination.