Supporting Information for

Electronic Control of Hot Electron Transport Using Modified Schottky Barriers in Metal–Semiconductor Nanodiodes

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KEYWORDS: *Hot electron, effective charge transfer, chemicurrent, photocurrent, Schottky barrier modification, metal–semiconductor composites*

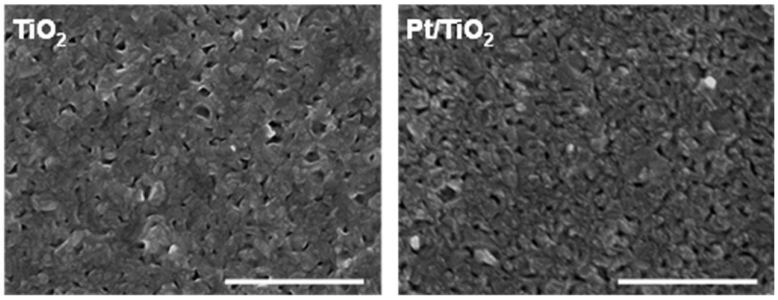

Figure S1. Scanning electron microscopy (SEM) images of TiO_2 and Pt/TiO_2, respectively. All scale bars indicate 500 nm.

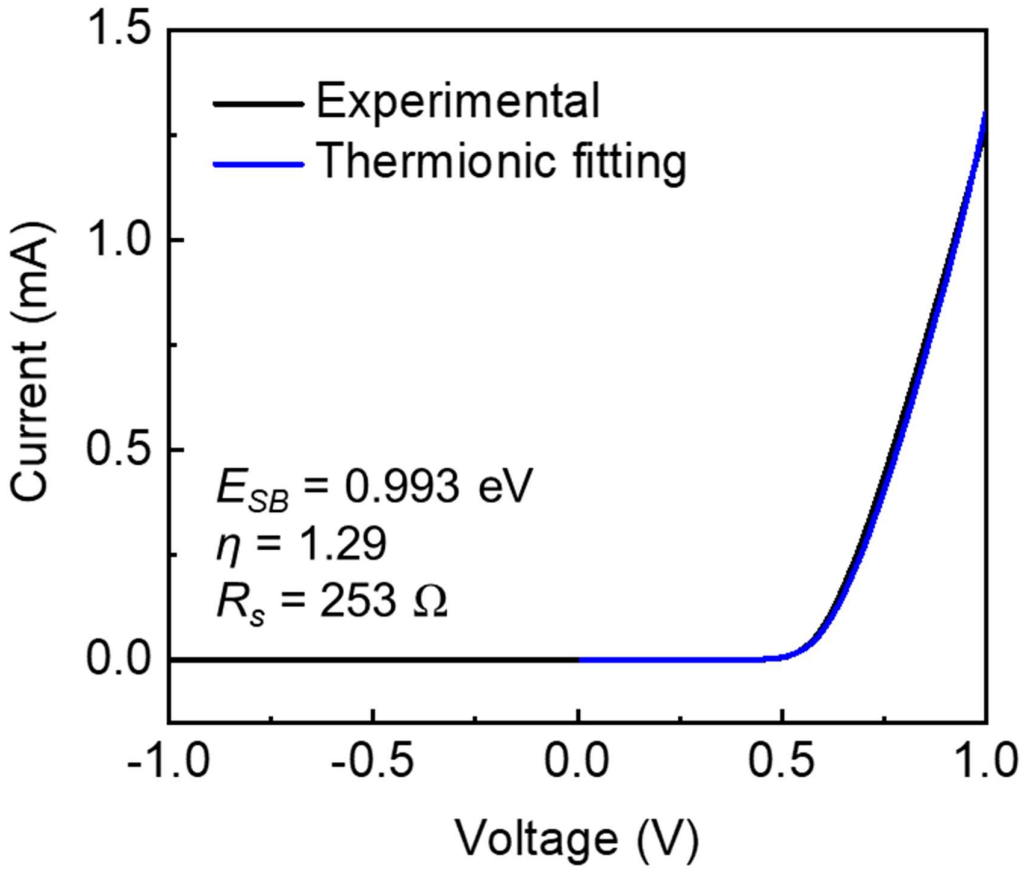

Figure S2. I-V characteristics of Pt/TiO_2 Schottky nanodiode. Schottky barrier (E_{SB}), ideality factor (η), and series resistance (R_s) are shown.

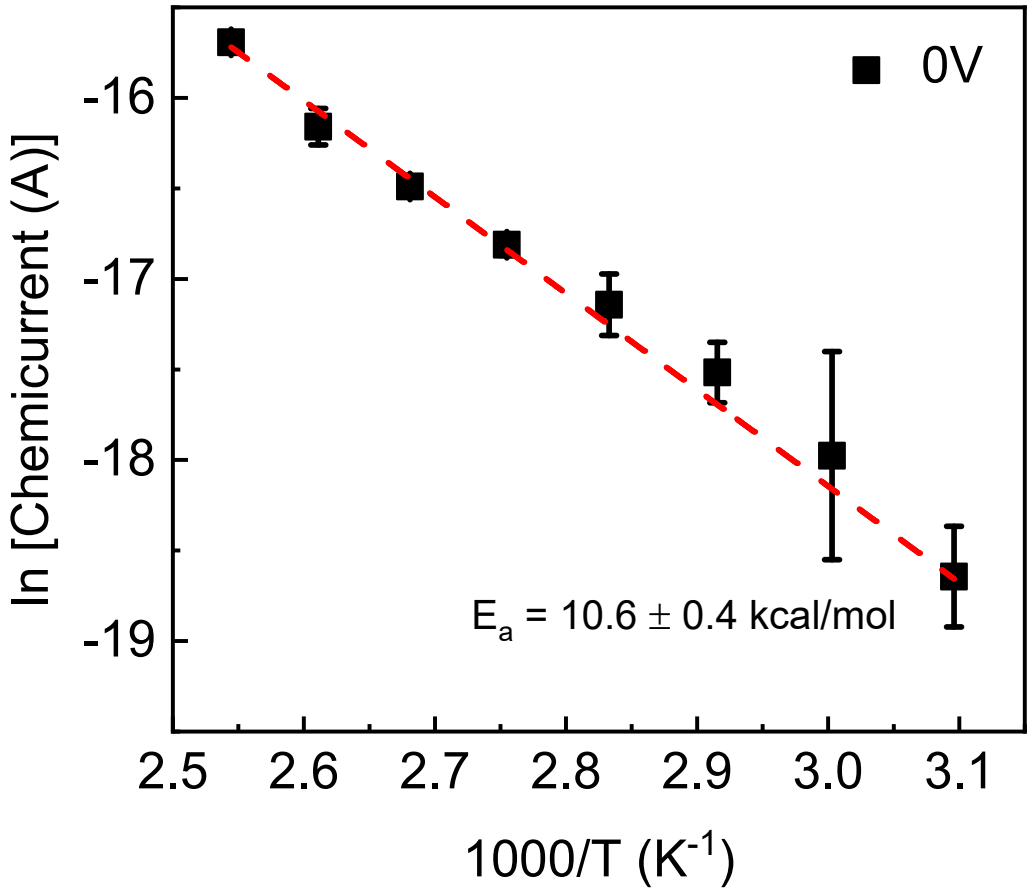

Figure S3. An Arrhenius plot of the chemicurrent without external bias. An activation energy of chemicurrent is shown.

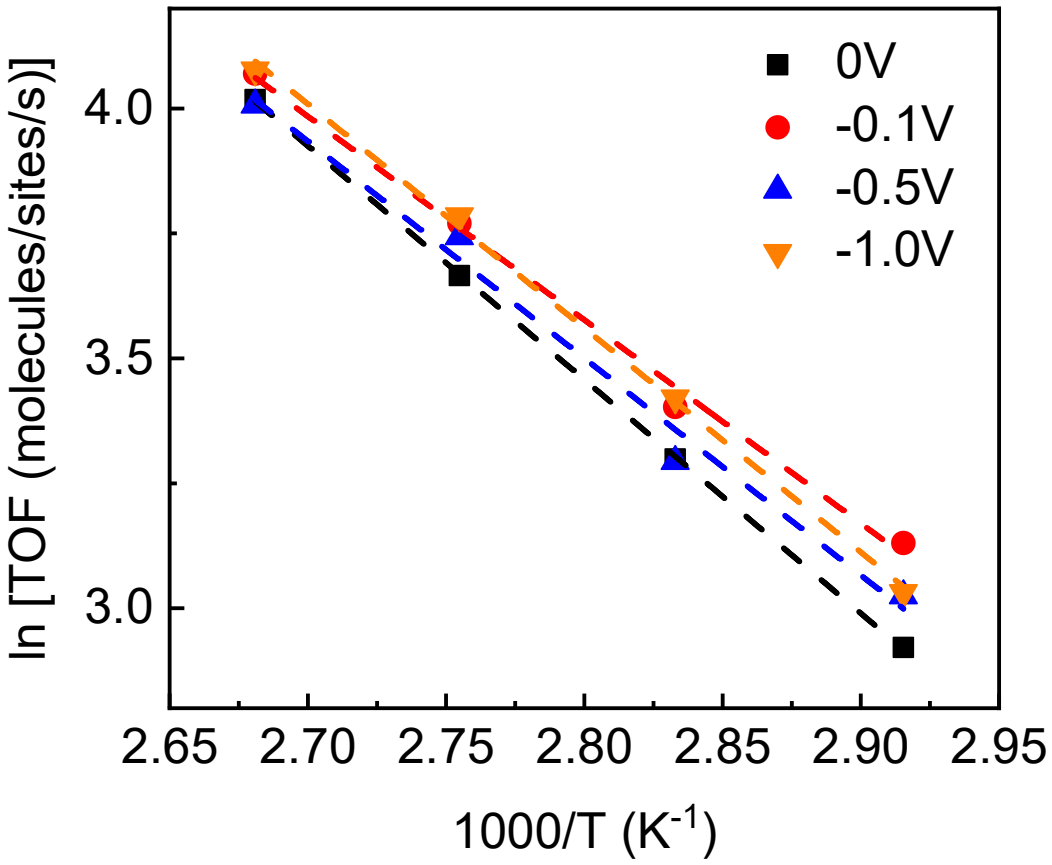

Figure S4. Arrhenius plot of turnover frequency (TOF) of Pt/TiO_2 Schottky nanodiode with applying reverse bias from 0 to -1.0 V. All results were gained at temperature from 70 to 100 ºC.

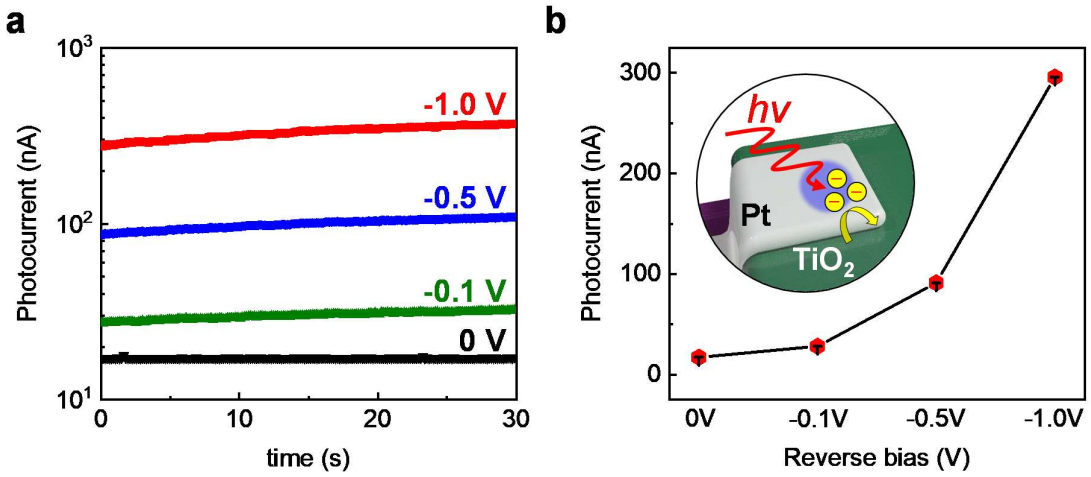

Figure S5. (a) Photocurrent of Pt/TiO_2 Schottky nanodiode with reverse bias as time goes by. (b) Photocurrent magnitude with respect to the applied reverse bias ranging from 0 to -1.0 V.

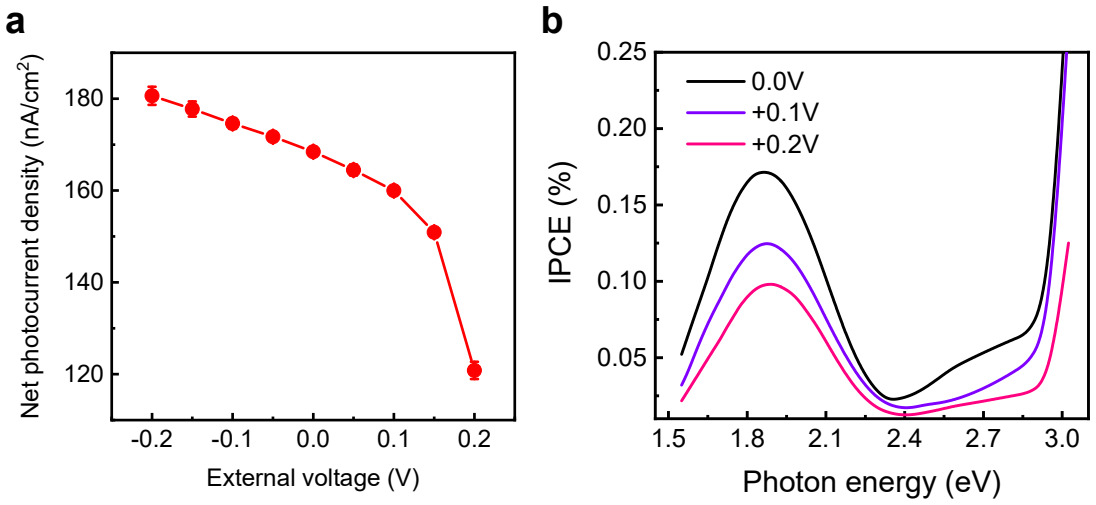

Figure S6. (a) Photocurrent of plasmonic Au/TiO_2 Schottky nanodiode near zero bias region (from -0.2 V to +0.2 V). (b) Incident photon-to-electron conversion efficiency (IPCE) of plasmonic Au/TiO_2 Schottky nanodiode with the applied positive bias ranging from 0 to +0.2 V.