Supporting Information

Ultrahigh Photothermal Temperature in Graphene/Conducting Polymer System Enables Contact Thermochemical Reaction

*Yuqiao Chai, Hui Ma, Xinlei Ma, Xinyue Zhang, Yonglin He, Yapei Wang, Qianqian Jiang, Xusheng Wang, Junhui Ji, and Mianqi Xue**

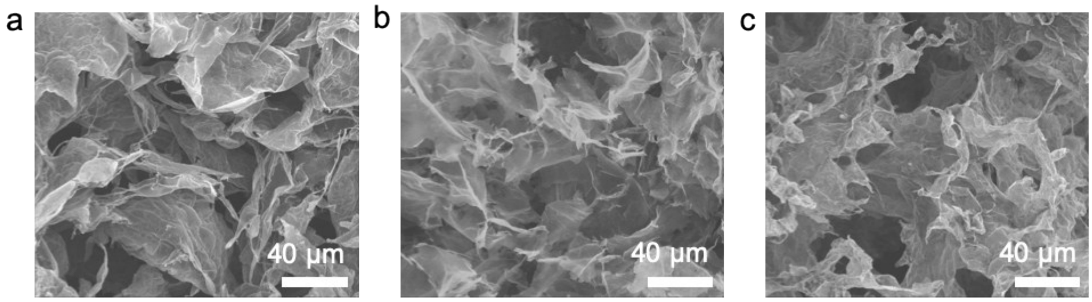

Fig. S1. SEM images of rGOF (a), rGO/PPyF-1 (b), and rGO/PPyF-2 (c).

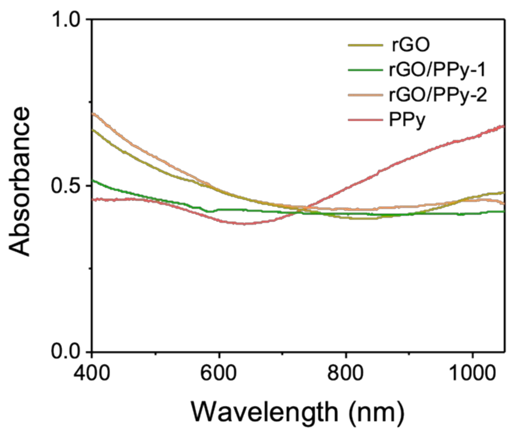

Fig. S2. UV-Vis-NIR absorbance spectra of rGO, rGO/PPy-1, rGO/PPy-2, and PPy dispersion. They show broad absorption in the NIR region without characteristic peak.

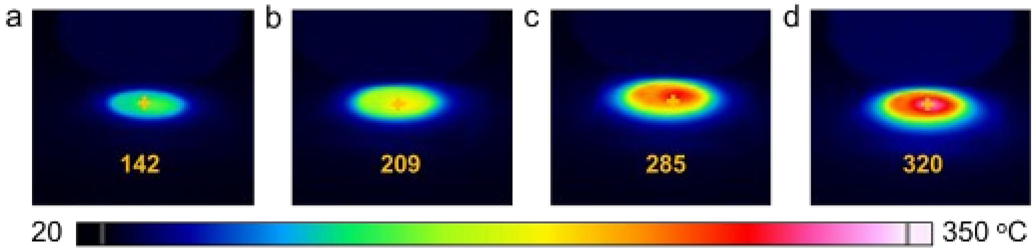

Fig. S3. IR thermal images of the rGO films on a PDMS substrate at different power densities of 0.8 (a), 1.5 (b), 2.2 (c), and 2.6 W cm^{-2} (d), respectively.

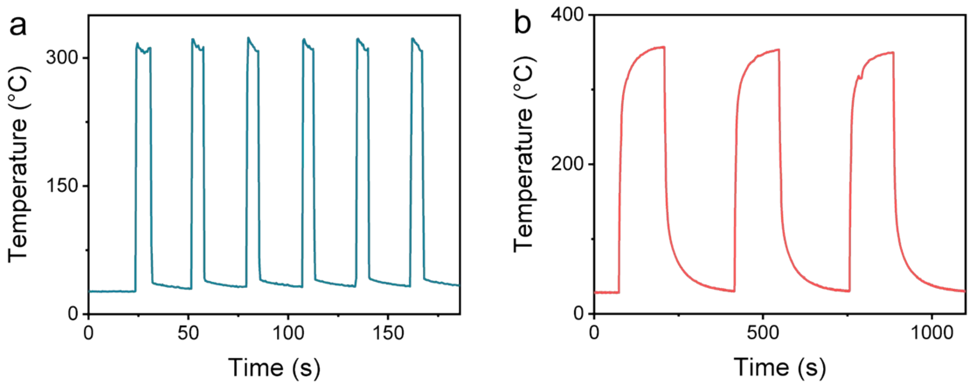

Fig. S4. On-off cycle response under a laser power density of 1.7 W cm^{-2} for rGOF (a), and PPy (b).

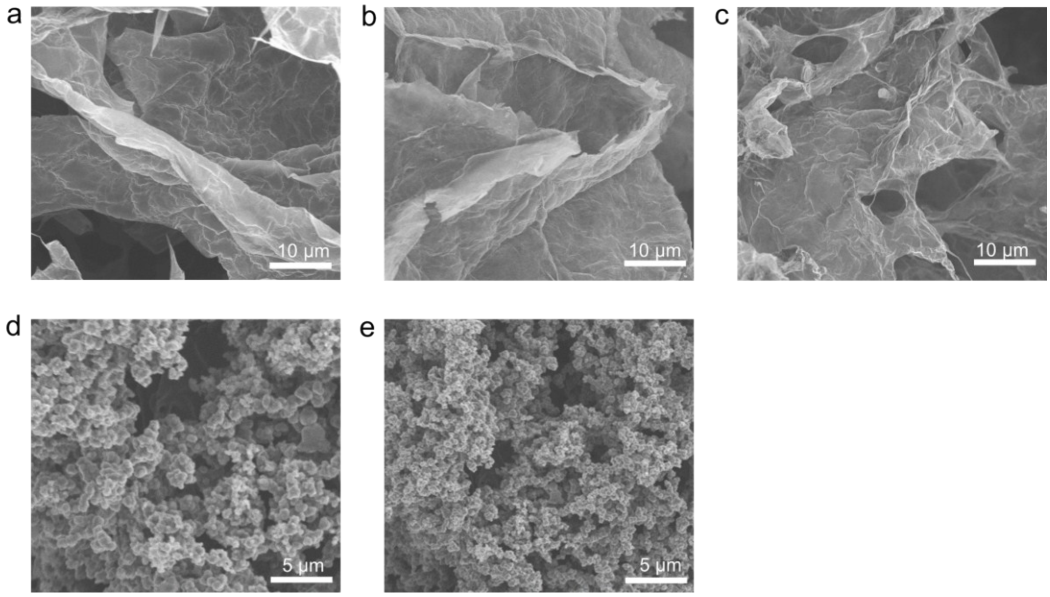

Fig. S5. (a-c) SEM images of the rGOF (a), rGO/PPyF-1 (b), and rGO/PPyF-2 (c) after a laser irradiation. (d,e) SEM images of the PPy powders before (d) and after (e) a laser irradiation.

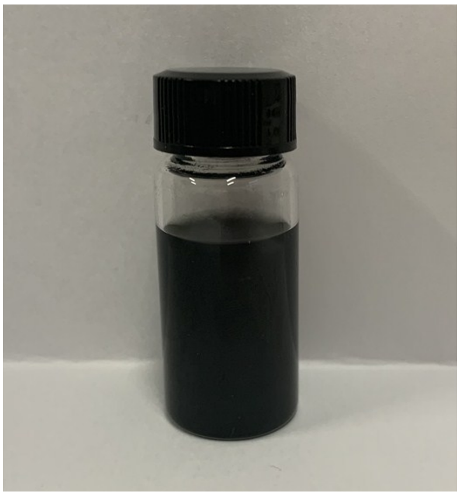

Fig. S6. Photograph of rGO/PPy-2-based ink. The rGO/PPy sheets were uniformly dispersed in ethanol.

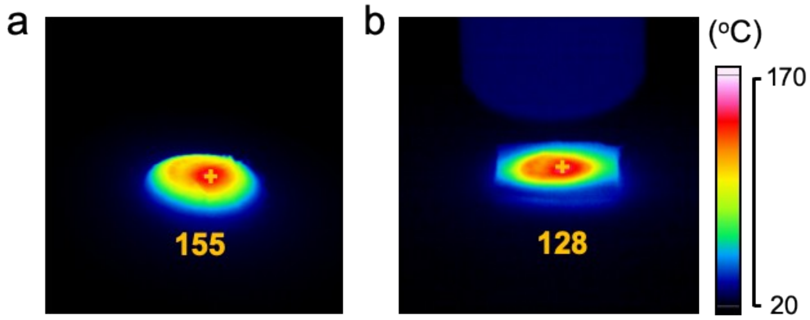

Fig. S7. IR thermal images of the rGO/PPy films on the substrates of A4 paper (a), and wood (b) with the 808 nm NIR irradiation at the power density of 0.8 W cm^{-2}

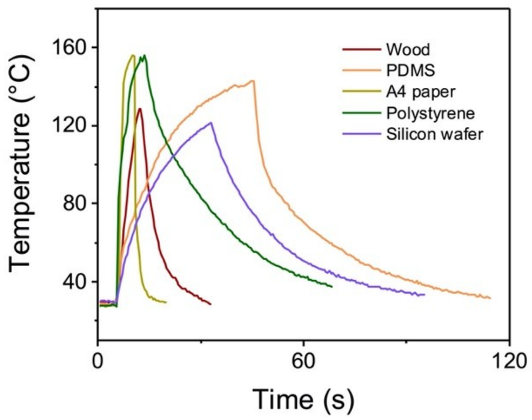

Fig. S8. Time-temperature curves of rGO/PPy-2-based films on the substrates of wood, PDMS, A4 paper, polystyrene, silicon wafer with the 808 nm NIR irradiation at the power densityof 0.8 W cm^{-2}.