Supplementary Information

Highly conductive and transparent copper nanowire electrodes on surface coated flexible and heat-sensitive substrates

Su Ding[a,b], Yanhong Tian[a,*], Jinting Jiu[c,*], Katsuaki Suganuma[c]

[a]State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology, Harbin, 150001, China

[b]College of Materials and Environmental Engineering, Hangzhou Dianzi University, Hangzhou, 310036, China

[c]The Institute of Scientific and Industrial Research (ISIR), Osaka University, Osaka 5650871, Japan

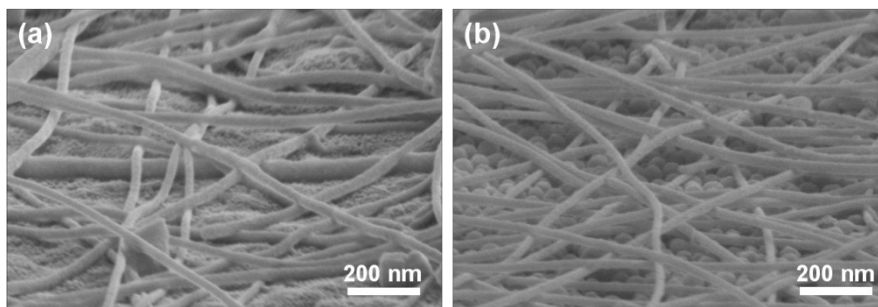Corresponding authors: tianyh@hit.edu.cn, jiu@eco.sanken.osaka-u.ac.jp

Fig. S1 Tilted SEM images of CuNW networks on N-PET and C-PET, respectively
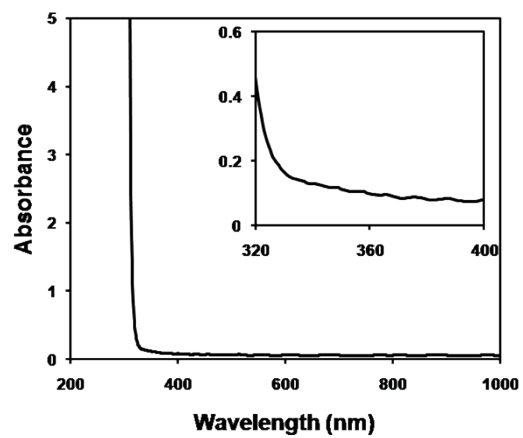
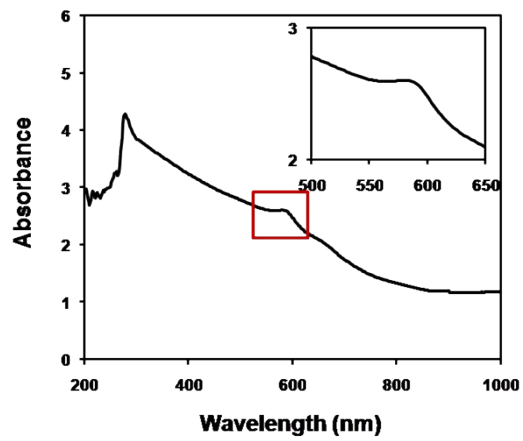Fig. S2 Adsorption spectrum of N-PET polymer.

Fig. S3 Adsorption spectrum of CuNWs.

Tab. S1 Parameters of Cu and N-PET used in the simulation

Material name	Thermal conductivity (W/mK)	Mass density (g/cm³)	Specific heat (J/kg)	Melt temperature (Degree)	Absorptivity (%)
Cu	401	8.96	382.5	1084.6	20
N-PET	0.24	1.4	730	370	-

Tab. S2 Parameters of the photonic sintering machine

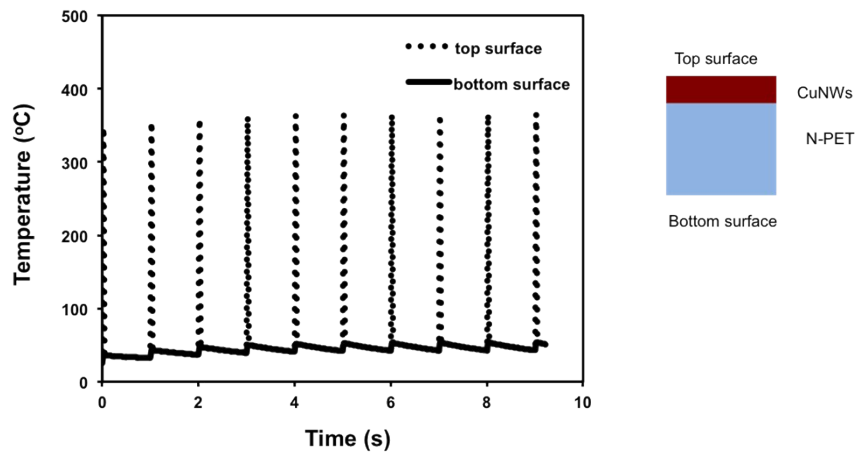| Voltage (V)	Pulse duration (µs)	Pulse number	Pulse frequency (Hz)
750	30	10	1

Fig. S4 Simulation result of the temperature evolution at the surface and the bottom of the CuNW transparent electrodes on N-PET substrate.
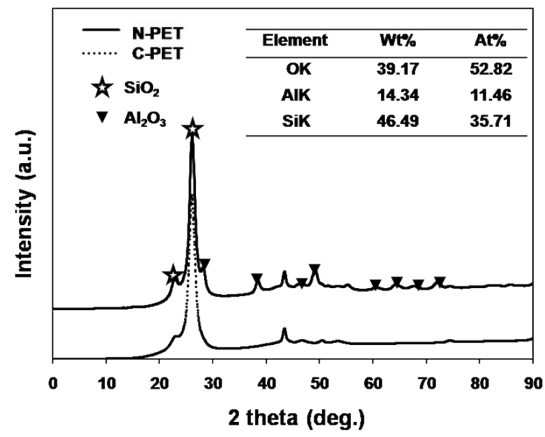
Fig. S5 XRD curves of N-PET and C-PET polymer. Inset is the quantity analysis result using energy dispersive spectrometer (EDS) result of C-PET.
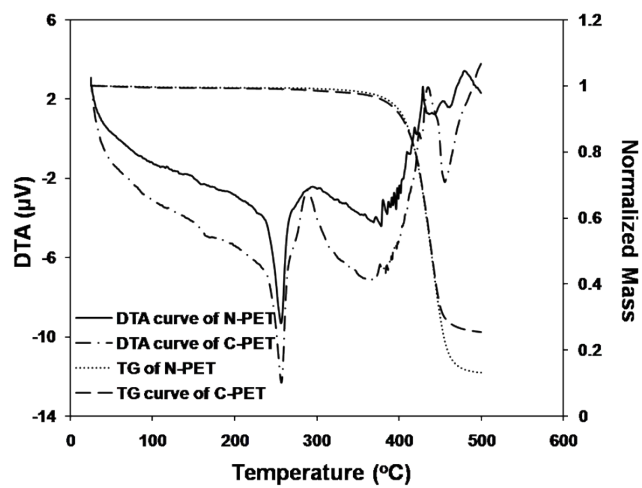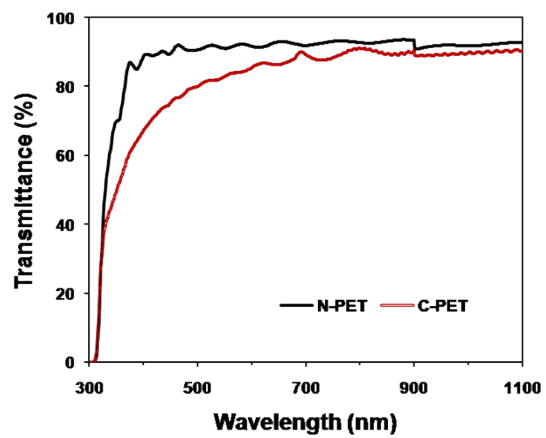
Fig. S6 DTA/TG curves of N-PET and C-PET polymer.

Fig. S7 Comparison of transmittance curves for bare N-PET and C-PET.