Electronic Supplementary Information

Localized photothermal effect of Co_3O_4 nanowires boosts its catalytic performance in glucose electrochemical detection

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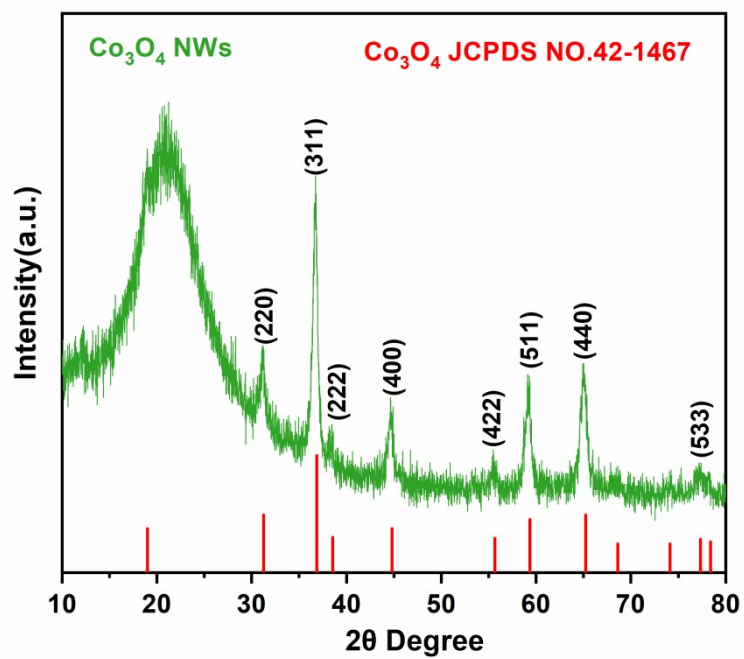E-mail: jphdp868@126.com; hedaiping@126.com.

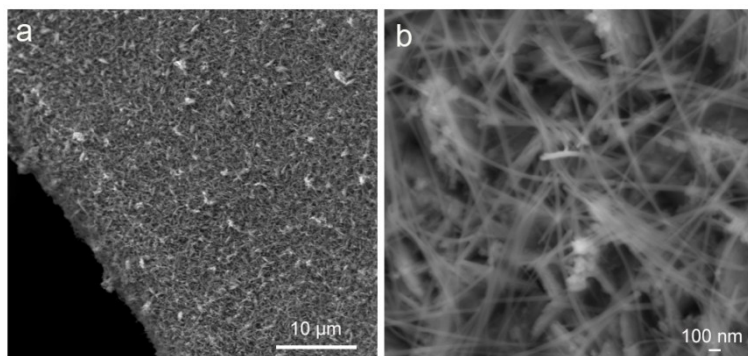**Fig. S1.** XRD pattern of calcinated product scratched from NF.

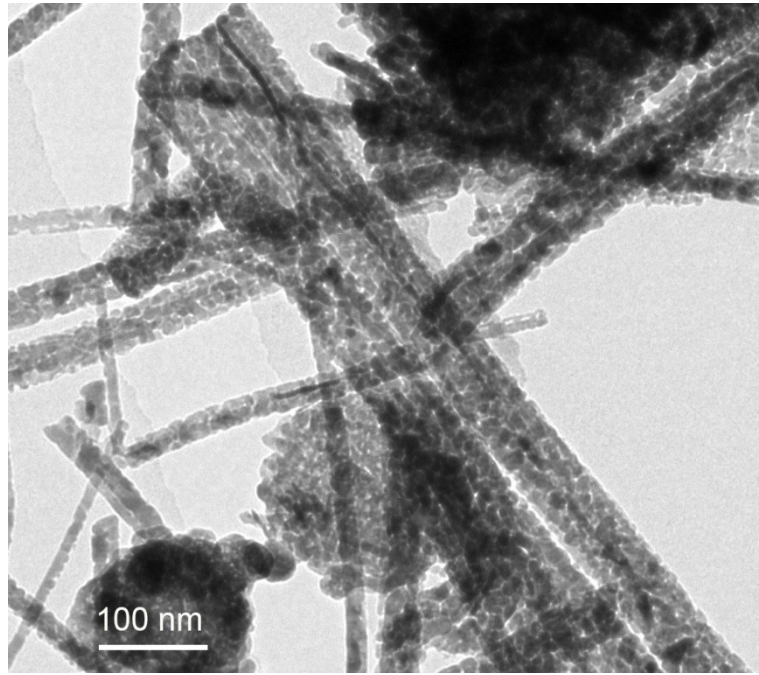**Fig. S2.** (a) Low- and (b) high- magnification SEM images of Co precursor.

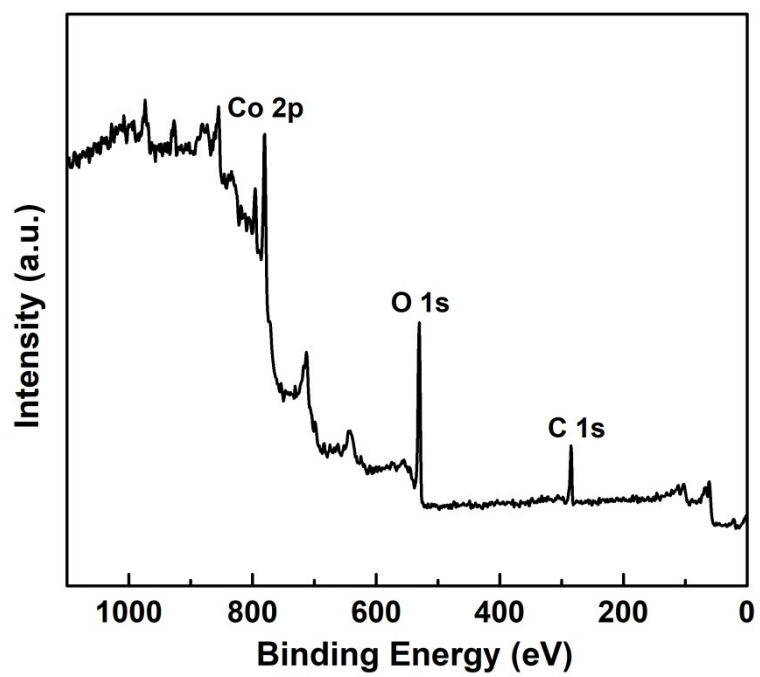**Fig. S3.** TEM images of Co_3O_4 NWs scratched from NF.

Fig. S4. XPS survey spectrum of Co_3O_4 NWs/NF.
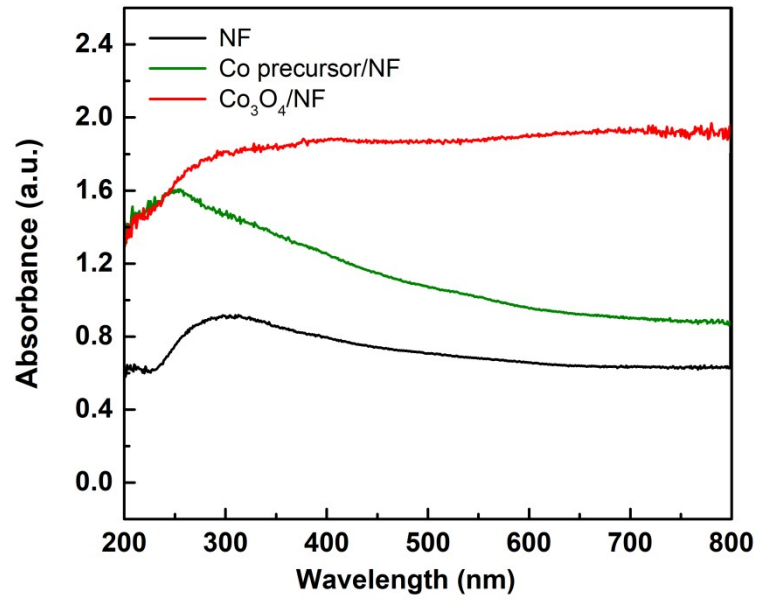
Fig. S5. UV-vis absorption spectrum of NF, Co precursor/NF and Co_3O_4 NWs/NF.
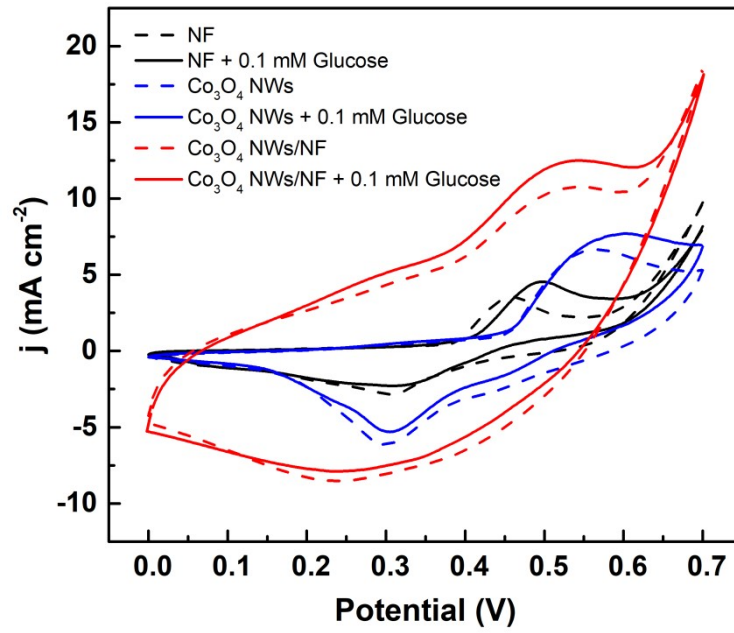
Fig. S6. CV curves of NF, Co_3O_4 NWs, and Co_3O_4 NWs/NF before (dash line) and after (solid line)

addition of 0.1 mM glucose.

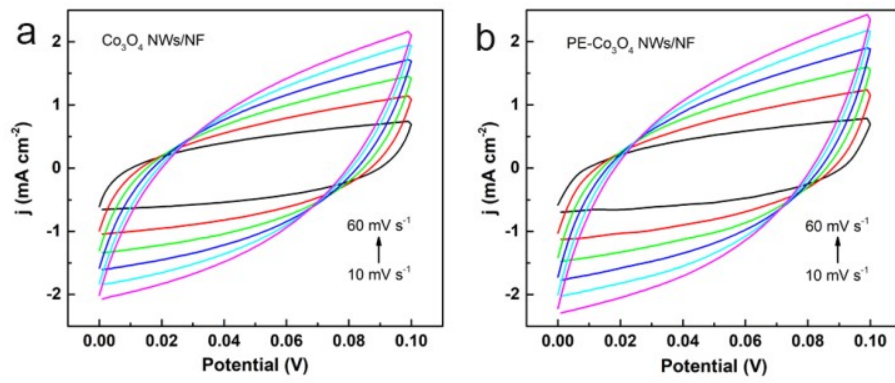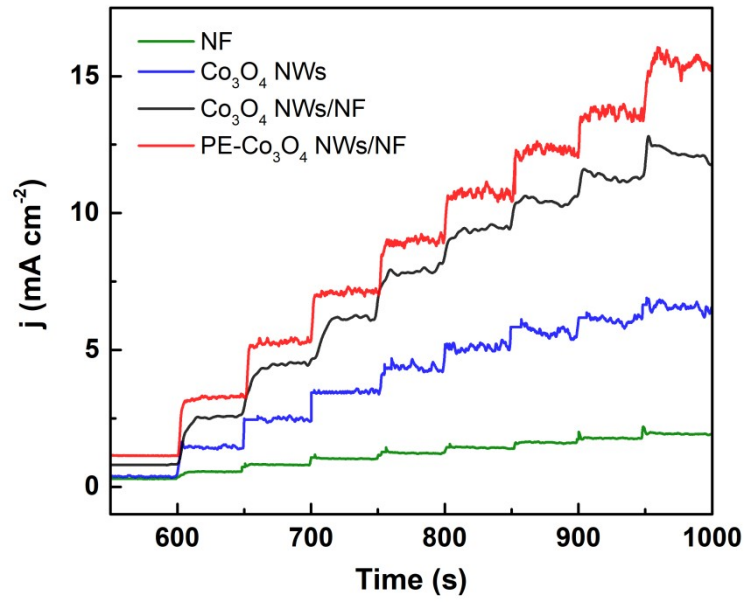**Fig. S7.** CV curves of Co_3O_4 NWs/NF (a) and PE-Co_3O_4 NWs/NF.

Fig. S8. Current responses of NF, Co_3O_4 NWs, Co_3O_4 NWs/NF, and PE-Co_3O_4 NWs/NF at 0.55 V

for continuous addition of 0.1 mM glucose.

Table S1. Comparison of the performances for various Co_3O_4 based enzyme-free glucose electrochemical sensors.

Sensors	Sensitivity (mA mM^{-1} cm^{-2})	Linear range (mM)	LOD (µM)	Potential (V)	Refs
MnO$_2$/Co$_3$O$_4$	0.13	0 - 7	0.03	0.55	43
SS-Co$_3$O$_4$	0.67	0.04 - 4.8	3	0.48	14
Co$_3$O$_4$/rGO	0.082	0 - 2.0	50	0.35	38
Co$_3$O$_4$-MCNT	2.55	0.001-0.122	0..2	0.50	44
NF/NiCo$_2$O$_4$ NWs@ Co$_3$O$_4$NPs	3.80	0.02 - 0.1	10	0.60	45
Co$_3$O$_4$NPs@HCC-MWCNTs/GCE	1.26	0.0005 - 0.1	0.043	0.65	46
CuO-Co$_3$O$_4$	1.50	0 - 2.0	1.50	0.55	47
Porous Co$_3$O$_4$	1.06	0 - 0.60	0.32	0.55	48
rGO@Co$_3$O$_4$-NC/ITO	2.56	0.0005-0.02	0.050	0.65	49
Co$_3$O$_4$ NWs/NF	14.35	0.001 - 0.73	0.97	0.55	This work
PE-Co$_3$O$_4$ NWs/NF	26.14	0.001 - 0.73	0.56	0.55	This work

Table S2. Determination of glucose in spiked human serum sample 1 using the present PE-Co$_3$O$_4$ NWs/NF.

Sample	Found (μM)	Add (μM)	Detected (μM)	Recover (%)	RSD (%, n=3)
		10.0	16.41±0.18	101.9	1.10
Sample 1	6.11	20.0	27.01±0.17	103.4	0.63
		30.0	35.11±0.70	97.2	1.99