Supporting Information for

Efficient separation of photoexcited carriers in g-C_3N_4-decorated WO_3 nanowires array heterojunction as the cathode of rechargeable Li-O_2 battery

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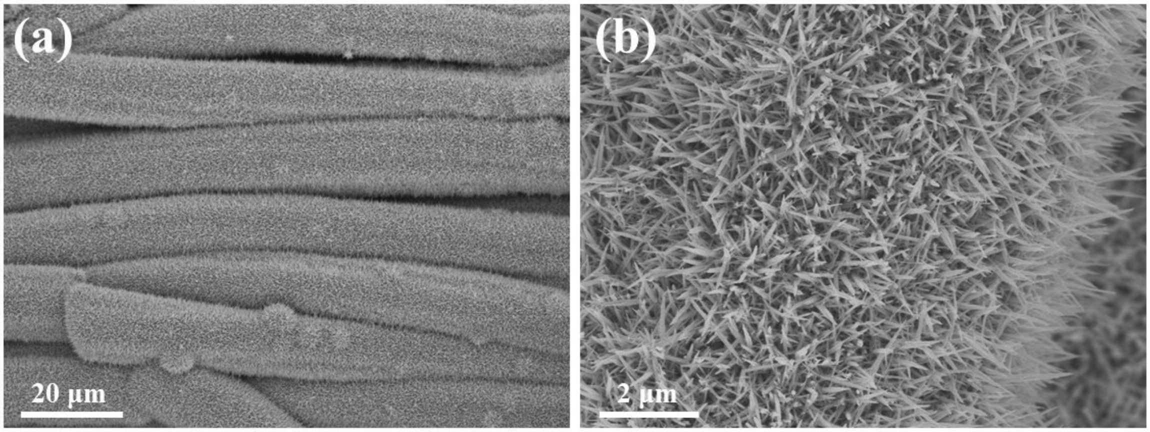

Fig. S1 SEM image of the W-precursor NWs before heat treatment: (a) low-magnification, (b) high-magnification.

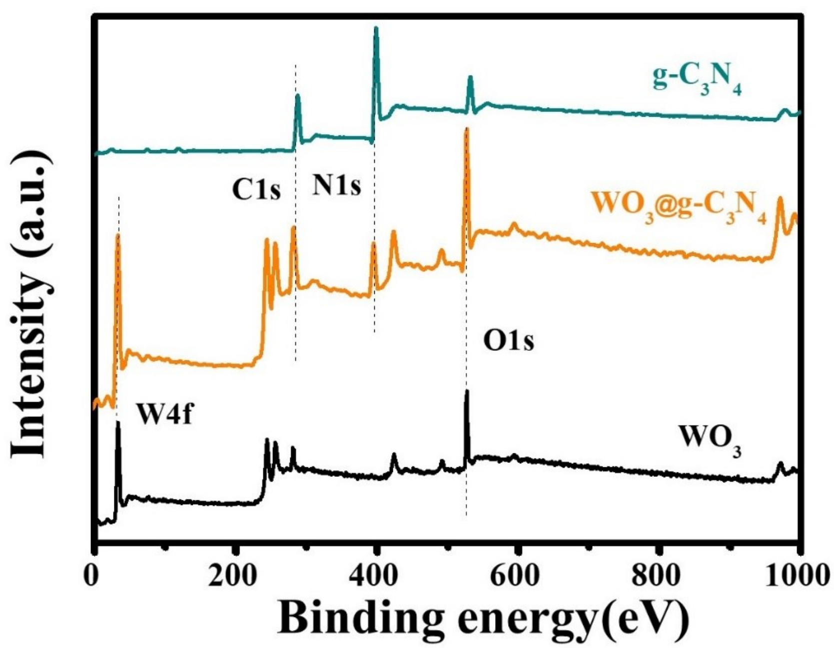

Fig. S2 XPS spectra of WO_3 NWA, g-C_3N_4 and WO_3@g-C_3N_4 NWA.

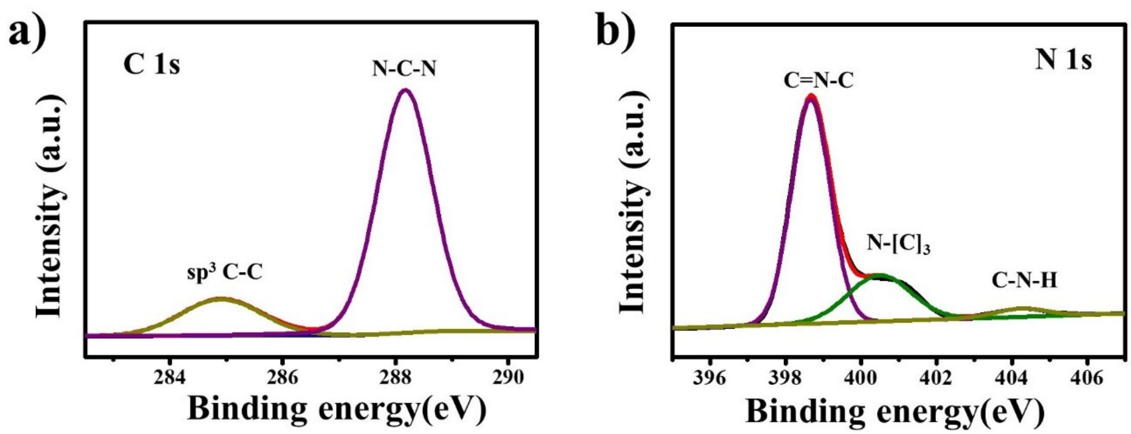

Fig. S3 High-resolution XPS spectra of g-C_3N_4: (a) C 1s, (b) N 1s.

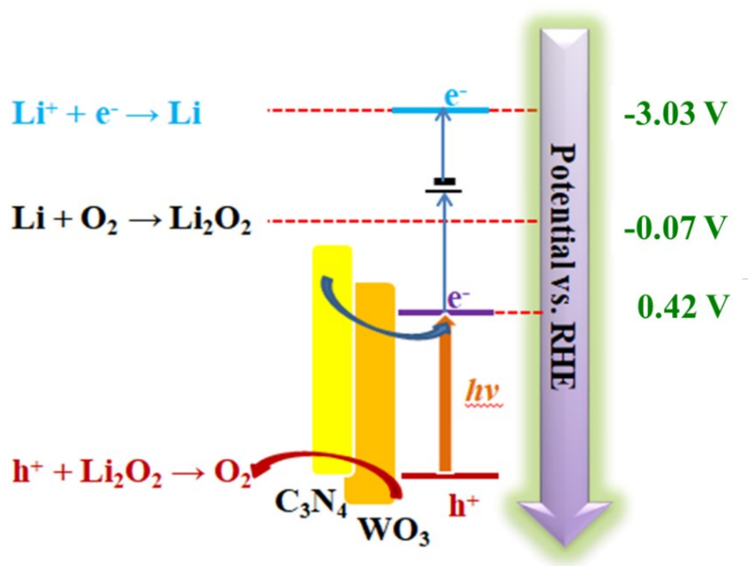

Fig. S4 The potential diagram of the photo-involved Li-O_2 batteries using WO_3@g-C_3N_4 NWA cathode

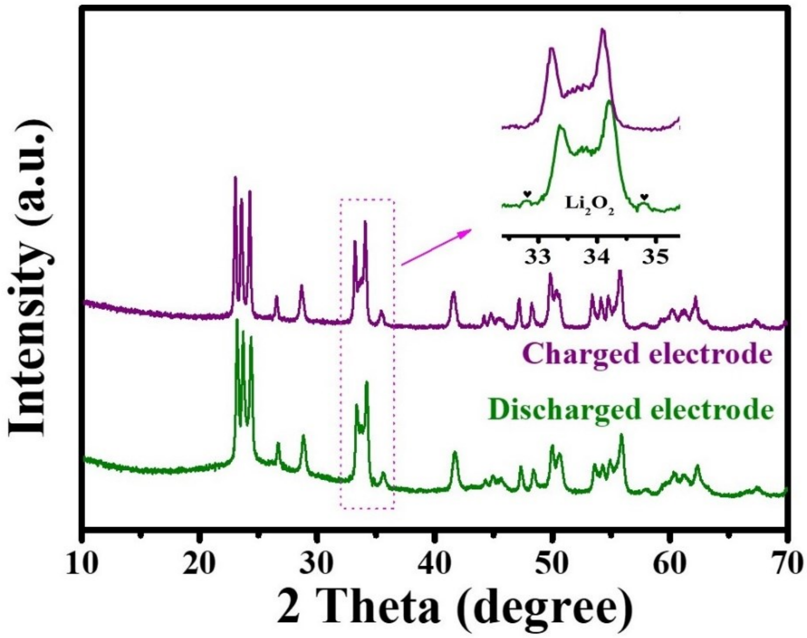

Fig. S5 XRD curves of discharged and recharged WO_3@g-C_3N_4 NWA cathode.

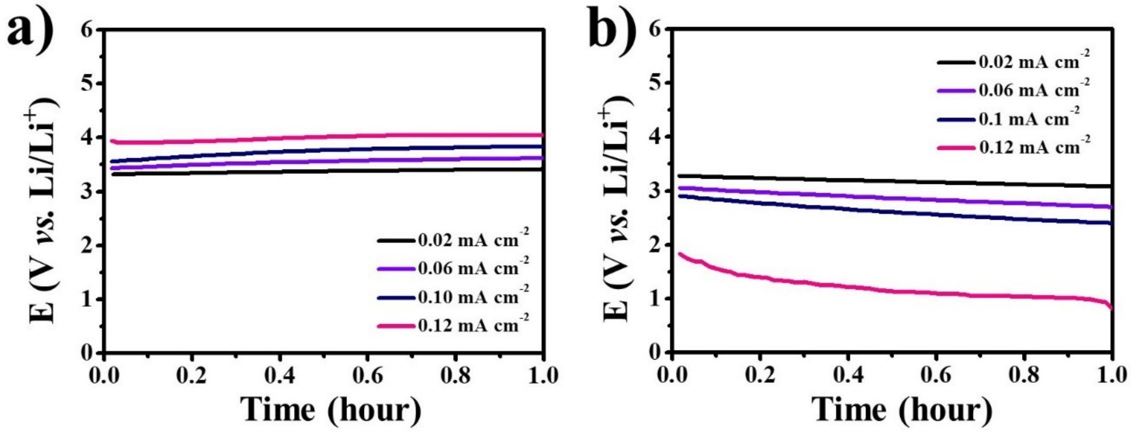

Fig. S6 The rate performance of the WO_3 NWA-based photo-involved Li-O_2 battery at the current densities form 0.06, 0.10, 0,12 and 0.14 mA cm^{-2}: (a) charging process, (b) discharging process.

Table S1. Charging Voltage of the $WO_3@g\text{-}C_3N_4$ heterojunction cathode in this paper, compared with some other traditional Li-O_2 batteries.

Reference	Type of material	Charge Voltage (*vs.* Li/Li$^+$)
This work	$WO_3@g\text{-}C_3N_4$ NWA	3.69 V
1	MoS_2/CNTS	~4.0 V
2	α-MnO_2	~4.0 V
3	self-nitrogen-doped porous carbon	~4.0 V
4	C_xN_y particles@N-doped porous graphene	~4.1 V
5	MnO_2/carbon array-type	~4.0 V
6	Co_2P Nanosheets	~4.25 V
7	α-MnO_2 nanorods/porous-carbon	~3.7 V

Table S2. Cycle numbers of the $WO_3@g\text{-}C_3N_4$ heterojunction cathode in this paper, compared with some other photo-assisted Li-O_2 batteries.

Reference	Type of material	Cycle numbers
This work	$WO_3@g\text{-}C_3N_4$ NWA	100th
8	ZnS	50th
9	g-C_3N_4	50th
10	TiO_2/CT	30th
11	The dye-sensitized TiO_2	25th

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