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Supporting Information

MgO-template Synthesis of Hollow N/O Dual Doped Carbon Boxes as Extremely Stable Anode for Potassium Ion Batteries

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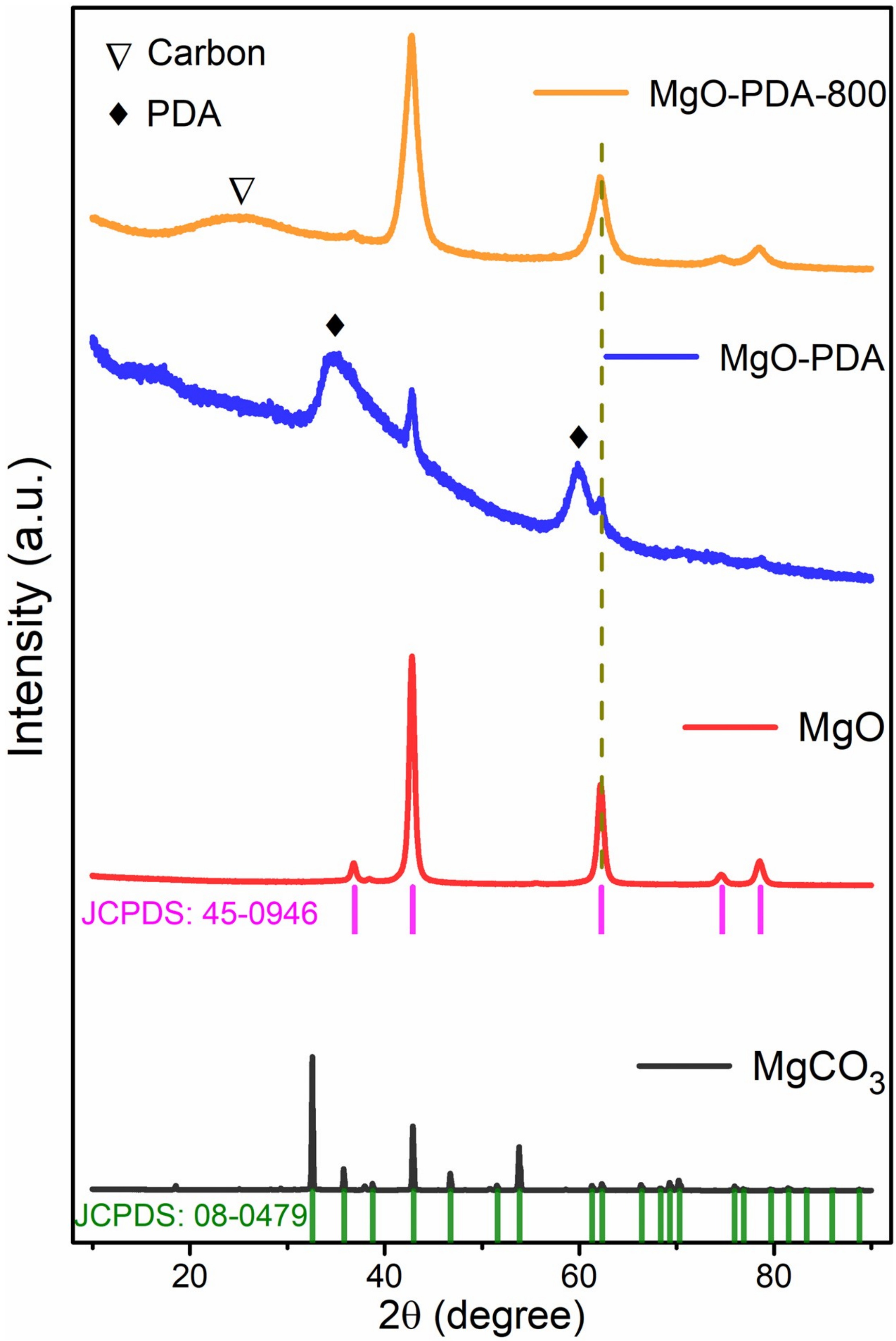

Fig. S1. XRD pattern of $MgCO_3$, MgO, MgO-PDA and MgO-PDA-800.

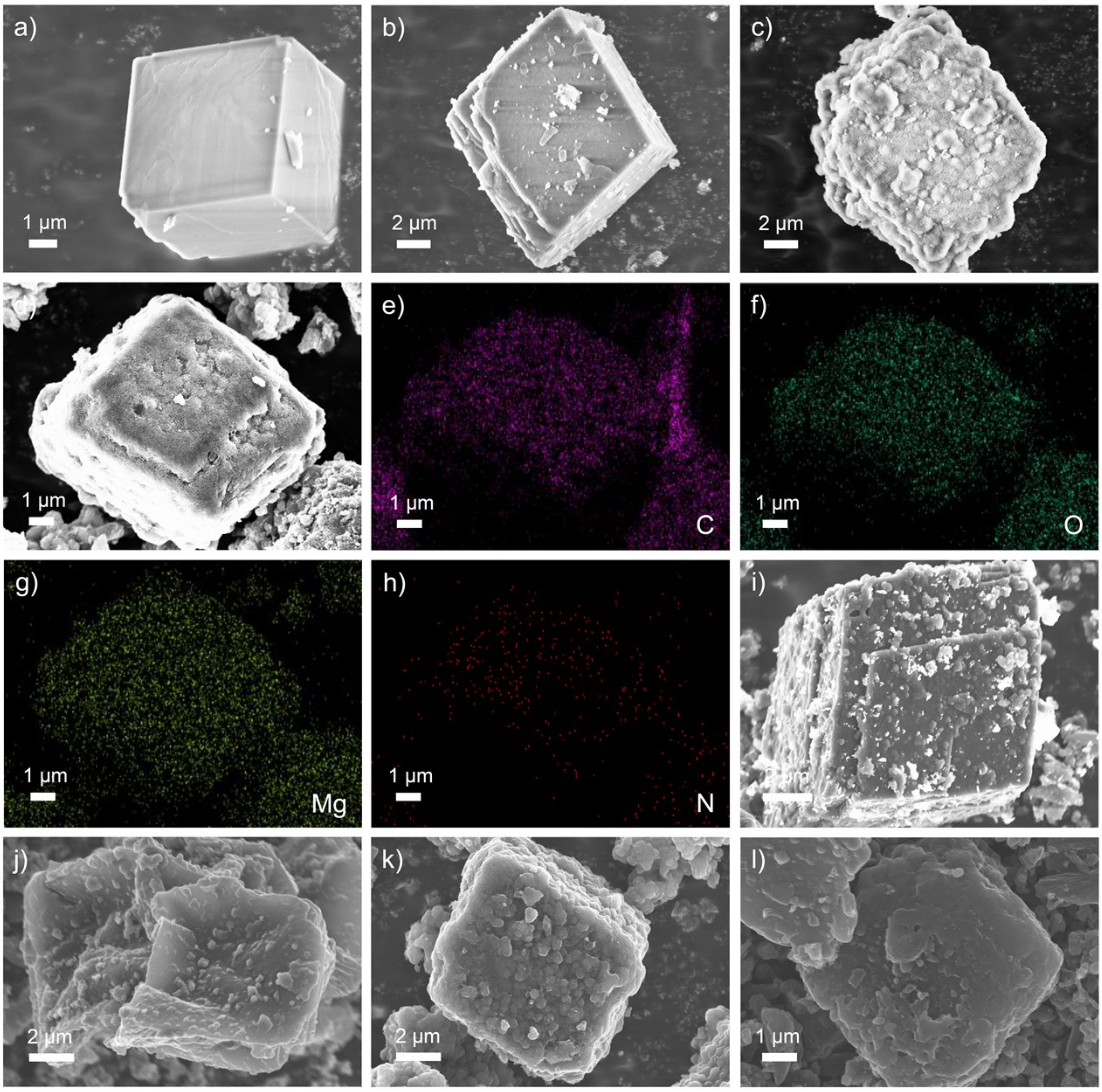

Fig. S2. SEM images of $MgCO_3$ (a), MgO (b), MgO-PDA (c); SEM images (d, i) and corresponding element mappings (e-h) of MgO-PDA-800; SEM images of H-NOCBs (j-l).

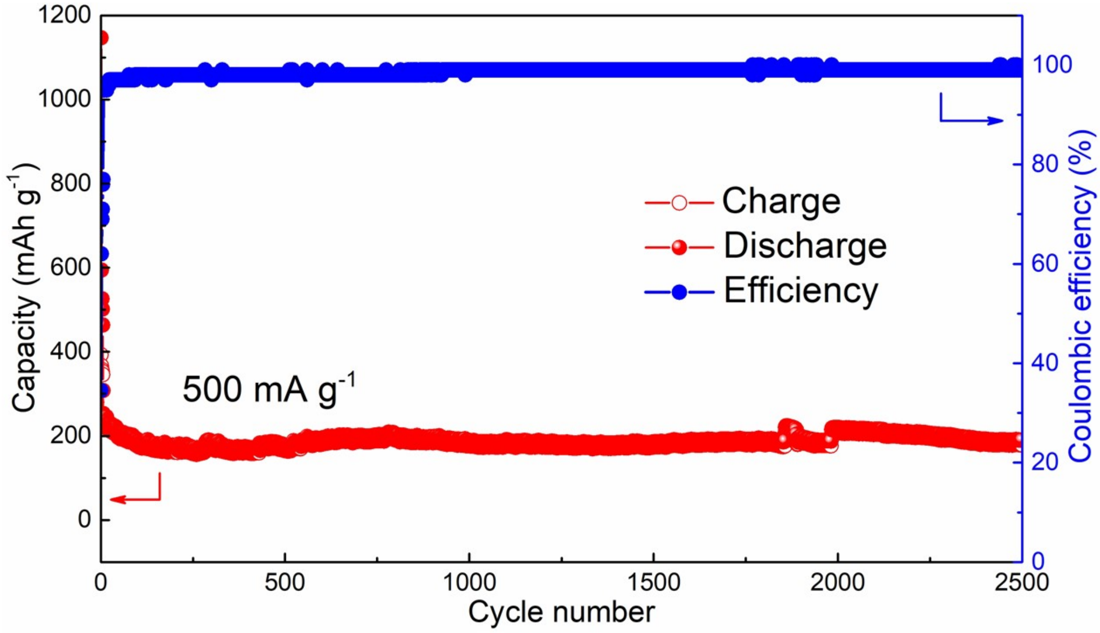

Fig. S3. Long-term cyclic stability of H-NOCBs at 500 mAh g^{-1} for 2500 cycles.

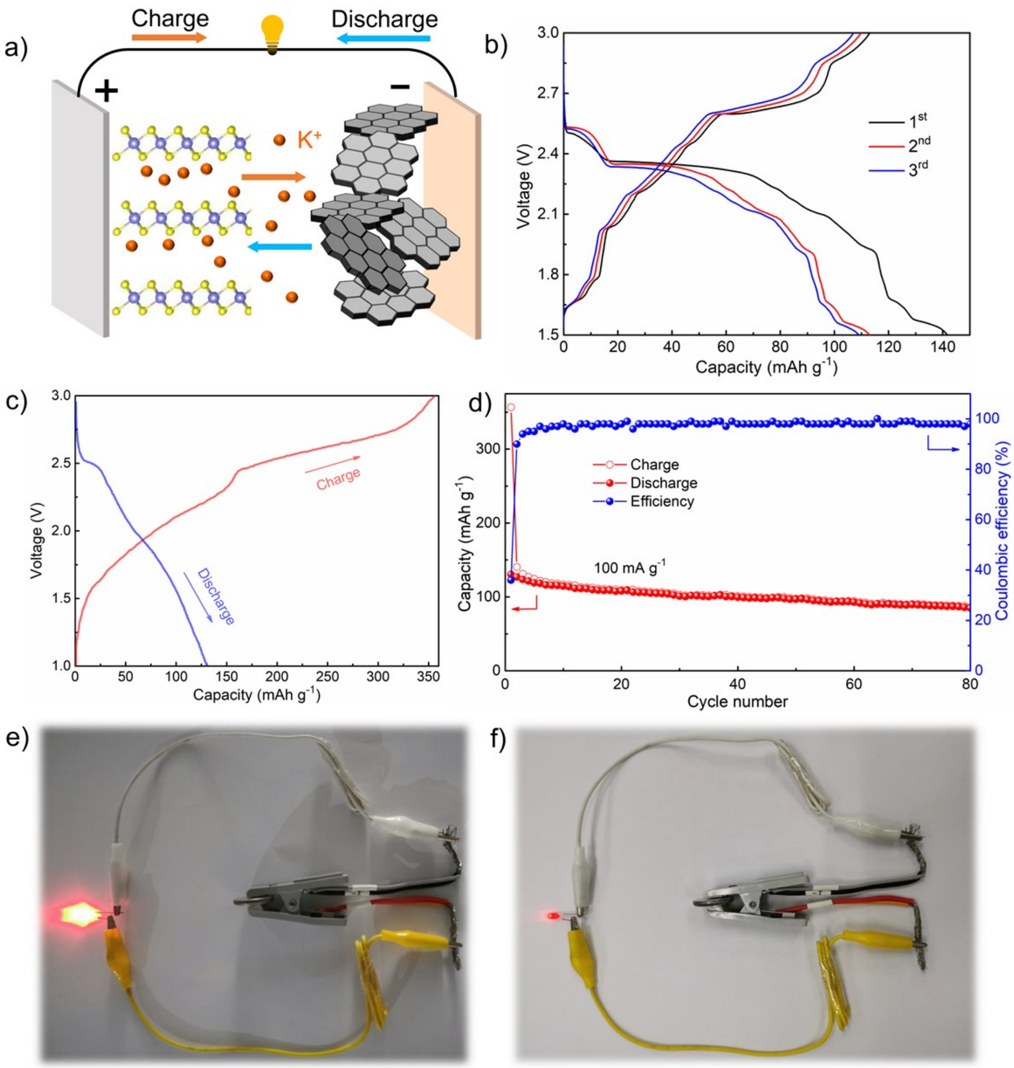

Fig. S4. a) Schematic illustration of the full cell employing H-NOCBs as the anode and TiS_2 as the cathode; b) initial three charge/discharge curves of TiS_2 as cathodes in a half cell at 100 mA g^{-1}; c-d) initial charge/discharge profile and cyclic stability of full cell at 100 mA g^{-1}; e-f) Photograph of an LED powered by the TiS_2/H-NOCBs full cell.

Table S1. Comparison of potassium ion storage capabilities of carbon-based anodes reported recently.

Materials	Current density ($A\ g^{-1}$)	Cycle number	Capacity ($mAh\ g^{-1}$)	Reference
H-NOCBs	0.5	2500	178.8	This work
	1	3000	167.8	
	1	5000	123.7	
	1	10000	123.3	
Amorphous ordered mesoporous carbon	1	1000	146.5	[1]
oxygen-rich carbon microspheres	0.279	900	192.7	[2]
Biomorphic N-doped carbon	1	1000	119.9	[3]
N/O dual-doped hard carbon	1	5000	189.5	[4]
Honeycomb-like nitrogen-doped carbon	1	2000	143.0	[5]
S/N co-doping graphene nanosheets	1	2000	188.8	[6]
Nitrogen doped soft carbon frameworks	1	500	165	[7]
Nitrogen/oxygen co-doped graphene-like carbon nanocages	0.5	300	131	[8]
Nano-size porous carbon spheres	1	1500	165.2	[9]
Few-layer nitrogen-doped graphene	0.5	500	150.0	[10]
N-doped necklace-like hollow carbon	1	1600	161.3	[11]
N-doped hollow carbon nanosphere	1	2500	154	[12]
N-doped carbon nanofibers	1	2000	164	[13]
	2	4000	146	
Mesoporous carbon	1	2000	178	[14]
Nitrogen-doped mesoporous carbon spheres	1	3600	113.9	[15]
hollow N-doped carbon	1	800	160	[16]
Three-dimensional carbonaceous material	1	2000	161.7	[17]
F and N codoped carbon nanosheets	5	4000	131	[18]
N/O co-doped mesoporous carbon octahedrons	1	1300	100	[19]

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