Electronic Supplementary Information (ESI)

ZnO Nanosheet/Squeezebox-like Porous Carbon Composite Synthesized by In-Situ Pyrolysis of a Mixed-Ligand Metal-Organic Framework

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SI.1 Charaterization of ZnO/MPC

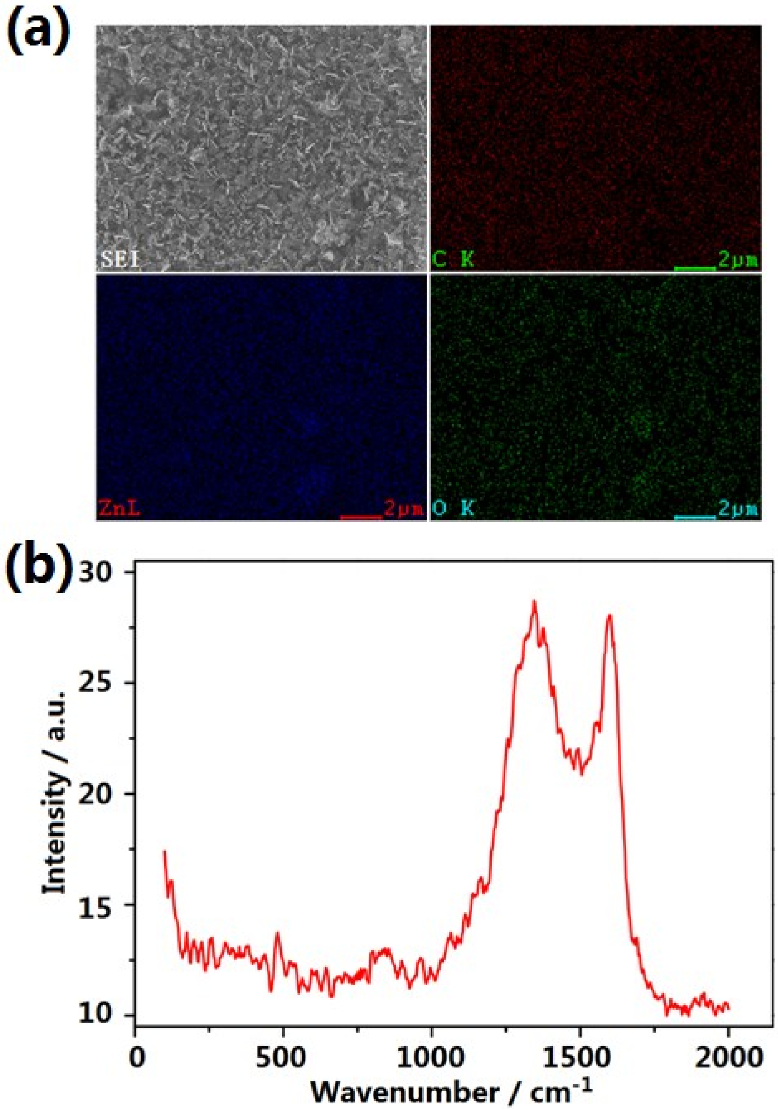

Fig. S1 (a)EDS mapping profiles and (b) Raman spectrum of ZnO/MPC.

The Raman data of ZnO/MPC[s1]:

ZnO: 197 cm^{-1} (2Elow 2); 331 cm^{-1} (Ehigh 2-Elow 2); 410 cm^{-1} (E_1(TO)); 439 cm^{-1} (Ehigh 2);

483 cm^{-1} (2LA); 590 cm^{-1} (E_1(LO)); 780 cm^{-1} (LA+TO).

C: 1344 cm^{-1} (D), 1600(G).

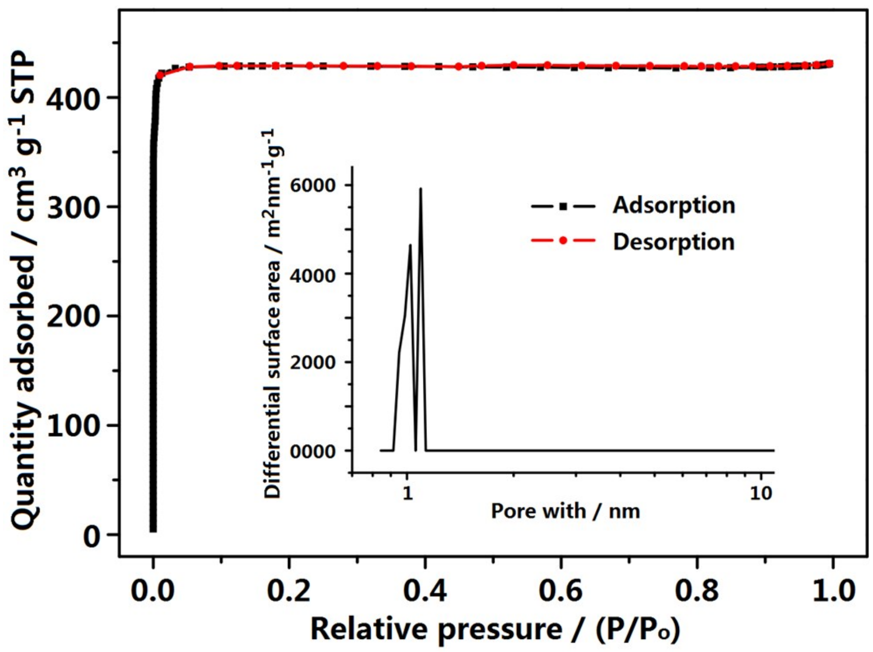

Fig. S2 N_2 adsorption isotherms of Zn-BDC-TED. The inset is the pore size distribution. The BET specific surface area is 1241 m^2 g^{-1}. The single point adsorption total pore volume is 0.666 cm^3 g^{-1}, and the t-Plot micropore volume is 0.662 cm^3 g^{-1}.

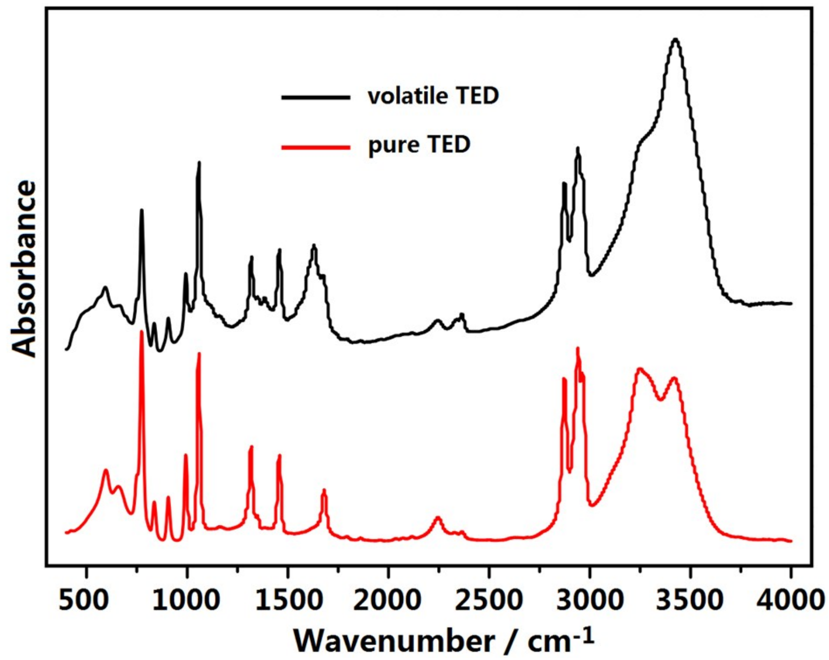

Fig. S3 FTIR curves of the collected condensate and the commercial TED.

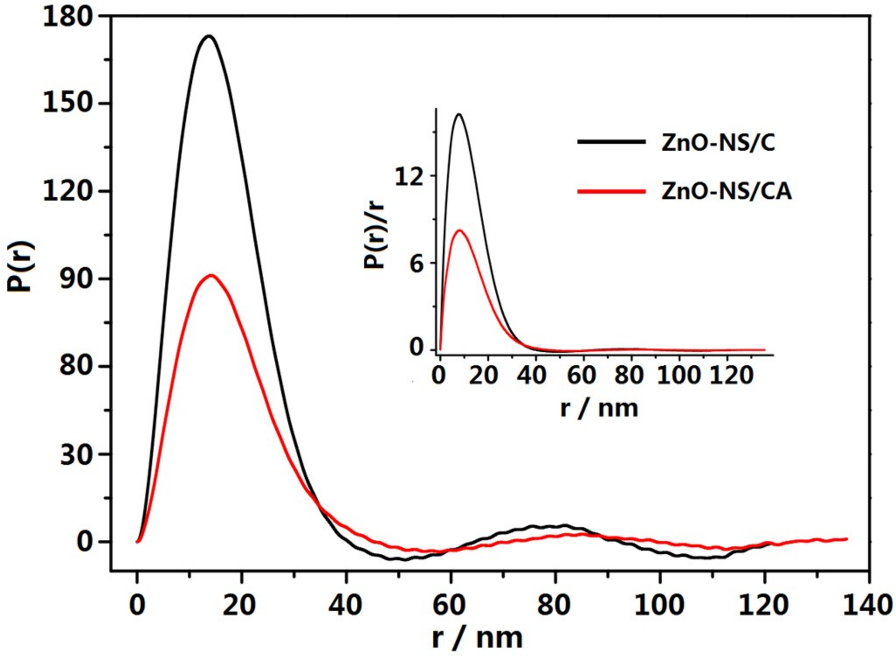

Fig. S4 The distance distribution function P(r) of SAXS curves for ZnO/MPC and MPC. The inset is the form of P(r)/r, which is used to calculate the shape parameters.

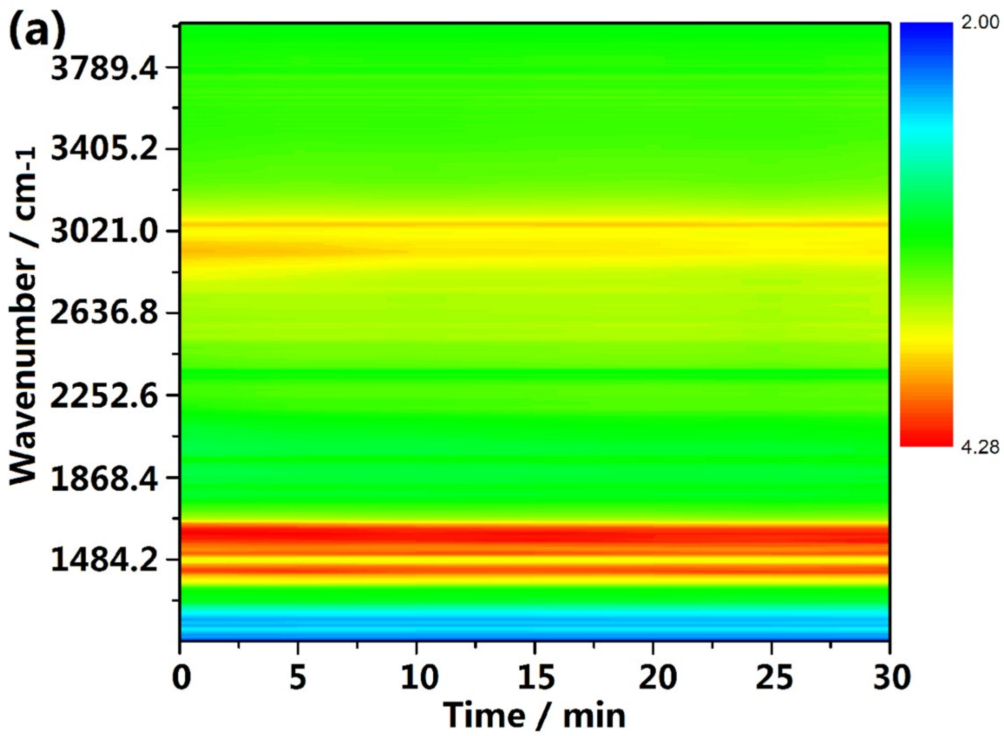

Fig. S5 In-situ 2D-DRIFT profiles of the pyrolysis of Zn-BDC-TED, which was heated at a constant temperature of 500 ℃. (the color bar is the scale of absorbance).

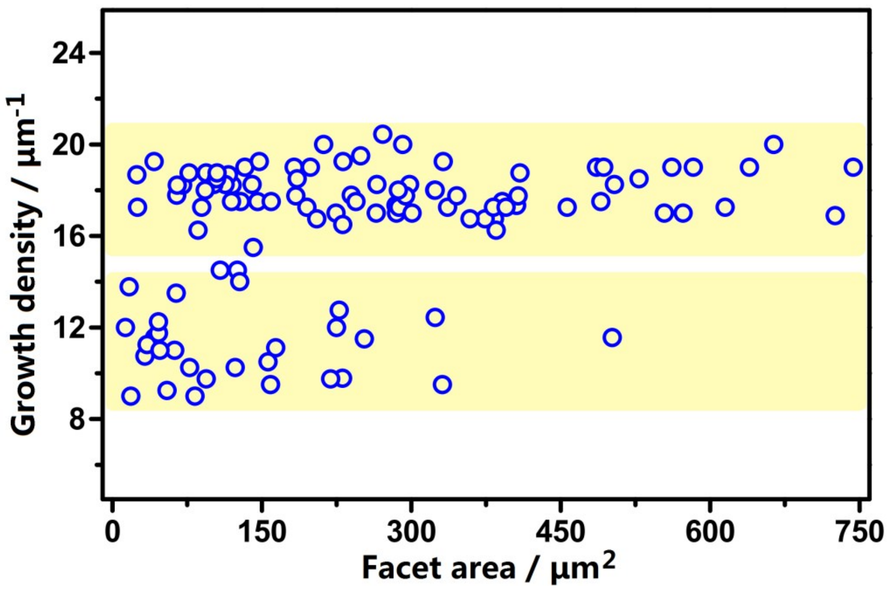

Fig. S6 The growth density of ZnO nanosheets on different facet of particles. The x-axis is the facet area of the corresponding surface that has ZnO nanosheets on it.

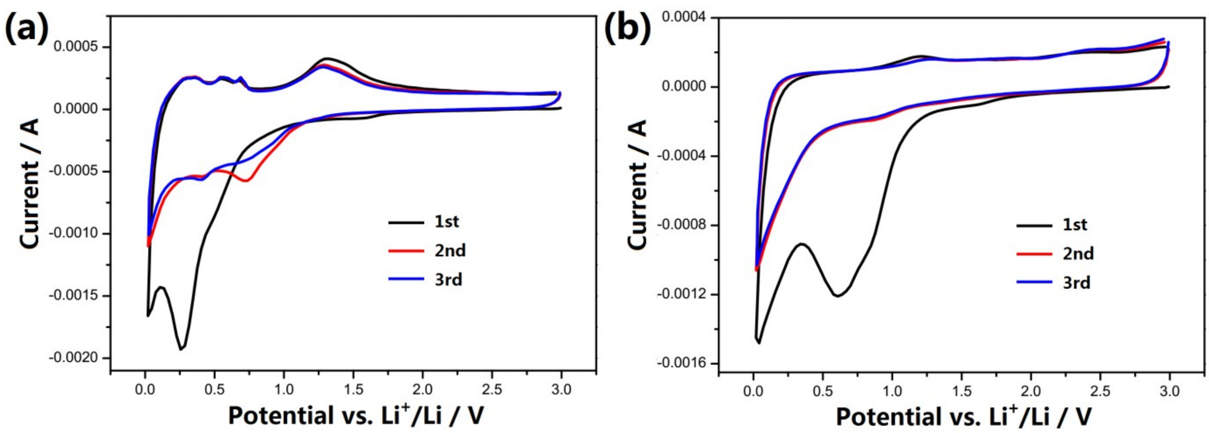

Fig. S7 Cyclic voltammograms of (a)ZnO/MPC and (b) MPC electrodes with scanning rate at 0.01 mV s^{-1} in the range of 0.01-3.0 V.

Table S1. The specific capacity values of ZnO nanomaterials in previous literature and this paper.

Materials	Current density	Discharge specific capacity (mAhg-1)	Cycle number	Ref.
ZnO NS	0.5C	163	30	s2
ZnO NS	0.5C	381	30	s2
ZnO NS	100 mA g^{-1}	420	50	s3
ZnO NS/rGO	200 mA g^{-1}	402	100	s4
ZnO ND	100 mA g^{-1}	478	50	s5
ZnO ND/CNTs	100 mA g^{-1}	602	50	s5
ZnO NR	0.1 mA cm^{-2}	310	40	s6
ZnO/CNTs	0.2C	460	100	s7
ZnO NR/C	0.25C	330	50	s8
ZnO/MPC	**60 mA g^{-1}**	**920**	**150**	**This work**
	500 mA g^{-1}	**560**	**20**	
	1 A g^{-1}	**363**	**20**	
MPC	**60 mA g^{-1}**	**974**	**150**	**This work**
	500 mA g^{-1}	**515**	**20**	
	1 A g^{-1}	**404**	**20**	

NS - nanosheet; ND - nanodisk; NR - nanoribbon; CNTs - carbon nanotubes; rGO - reduced graphene oxides

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