

Facile synthesis and characterization of ZnO octahedrons from solid-state transformation of Zn(II)–organic coordination polymers

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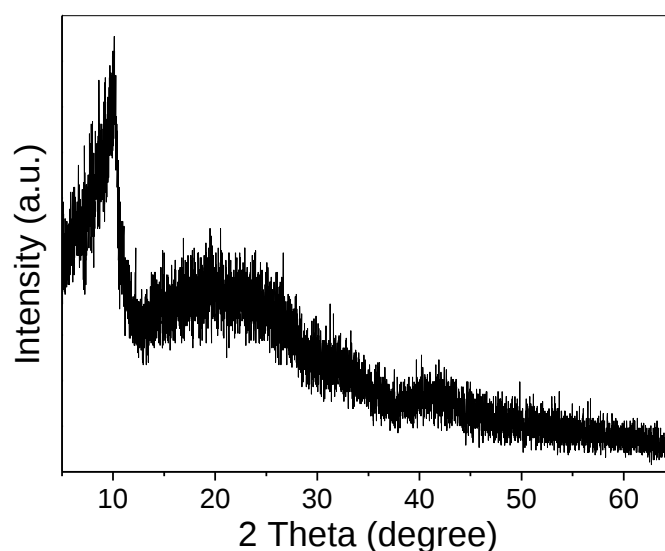


Fig. S1. XRD pattern of the sample prepared without washing with water and ethanol after solvothermal reaction.

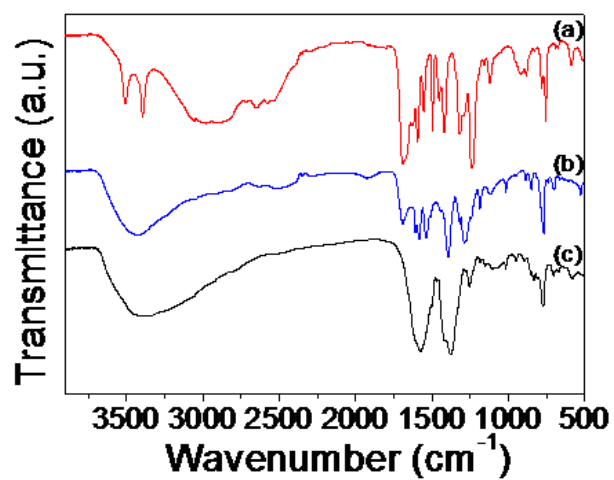


Fig. S2. FT-IR spectra of (a) NH₂-BDC; (b) H₃BTB; (c) ZNCP-1.

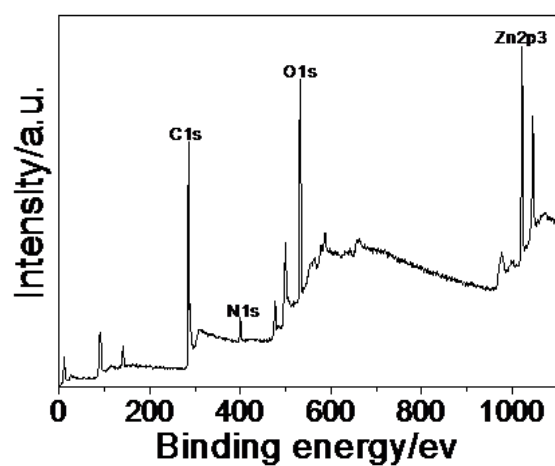


Fig. S3. XPS spectrum of the ZNCP-1.

TABLE S1: Samples and Corresponding Experimental Parameters

sample	Reaction time (h)	Reaction Temperature (°C)	m(Zn(NO ₃) ₂) (g)	m(NH ₂ -BDC) (g)	m(H ₃ BTB) (g)	Volume of DMF (mL)
ZNCP-1	12	160	0.1	0.05	0.025	16
ZNCP-2	12	160	0.05	0.05	0.025	16
ZNCP-3	12	160	0.15	0.05	0.025	16
ZNCP-4	12	160	0.1	0	0.025	16
ZNCP-5	12	160	0.1	0.00625	0.025	16
ZNCP-6	12	160	0.1	0.0125	0.025	16
ZNCP-7	12	160	0.1	0.025	0.025	16
ZNCP-8	12	160	0.1	0.05	0	16
ZNCP-9	12	160	0.1	0.05	0.0625	16
ZNCP-10	12	160	0.1	0.05	0.0125	16
ZNCP-11	12	160	0.1	0.05	0.05	16
ZNCP-12	12	80	0.1	0.05	0.025	16
ZNCP-13	12	100	0.1	0.05	0.025	16
ZNCP-14	12	120	0.1	0.05	0.025	16
ZNCP-15	3	160	0.1	0.05	0.025	16
ZNCP-16	6	160	0.1	0.05	0.025	16

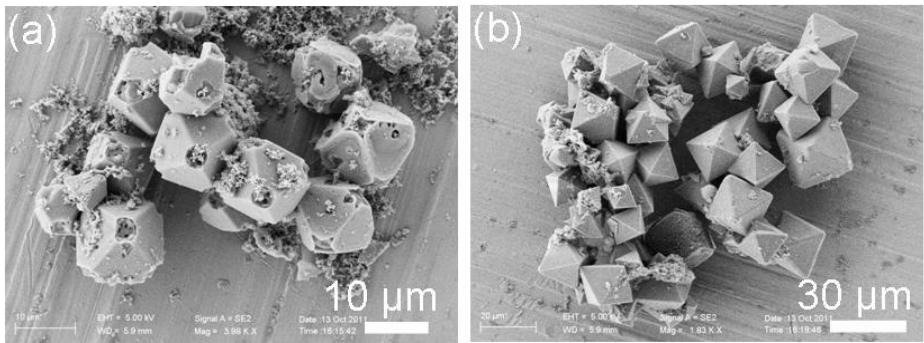


Fig. S4. SEM images of the ZNCP-1 prepared at different mass of Zn²⁺ and NH₂-BDC, H₃BTB with other conditions remaining unchanged: (a) 0.05 g (ZNCP-2); (b) 0.15 g (ZNCP-3).

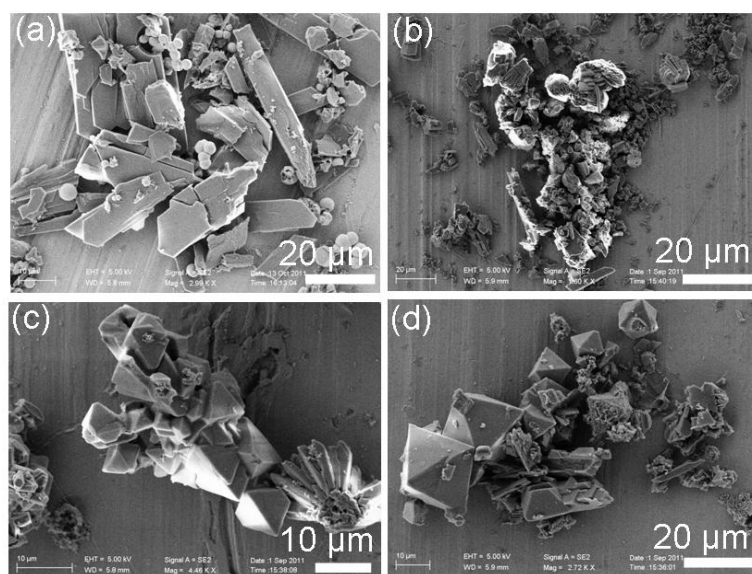


Fig. S5. SEM images of the ZNCP-1 prepared at different mass of $\text{NH}_2\text{-BDC}$ and Zn^{2+} , H_3BTB with other conditions remaining unchanged: (a) 0 g (ZNCP-4); (b) 0.00625 g (ZNCP-5); (c) 0.0125 g (ZNCP-6); (d) 0.025 g (ZNCP-7).

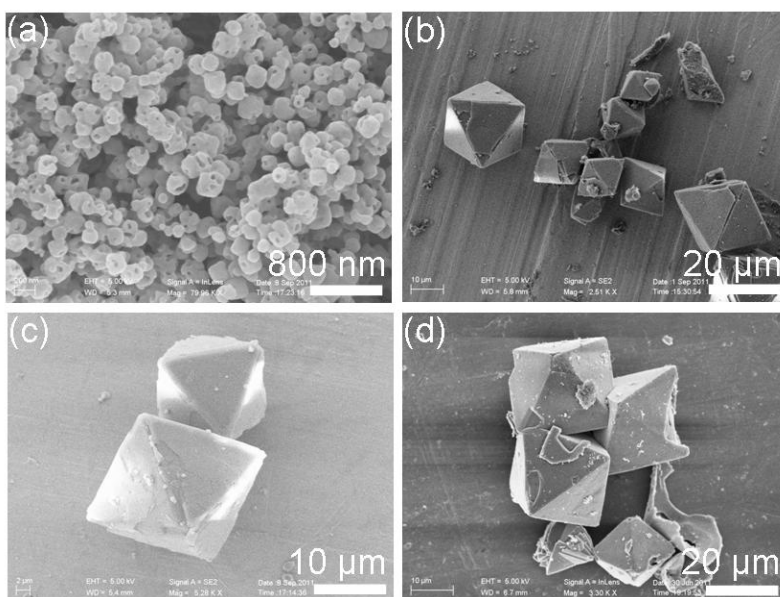


Fig. S6. SEM images of the ZNCP-1 prepared at different mass of H_3BTB and Zn^{2+} , $\text{NH}_2\text{-BDC}$ with other conditions remaining unchanged: (a) 0 g (ZNCP-8); (b) 0.00625 g (ZNCP-9); (c) 0.0125 g (ZNCP-10); (d) 0.05 g (ZNCP-11).

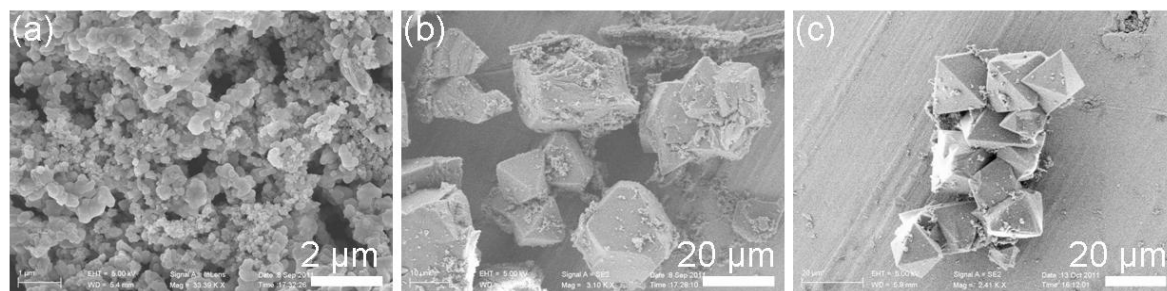


Fig. S7. SEM images of the ZNCP-1 at different temperature : (a) 80 °C (ZNCP-12); (b) 100 °C (ZNCP-13); (c) 120 °C (ZNCP-14).

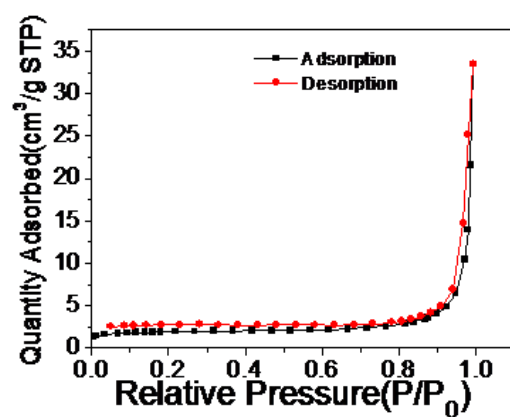


Fig. S8. Nitrogen adsorption-desorption isotherms for the ZnO octahedrons at -196 °C.

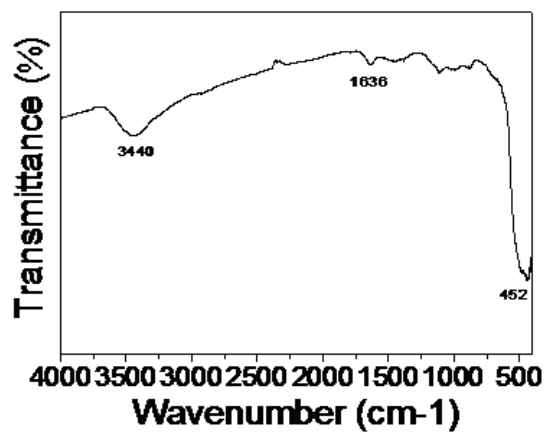


Fig. S9. FTIR spectrum of the ZnO octahedrons.

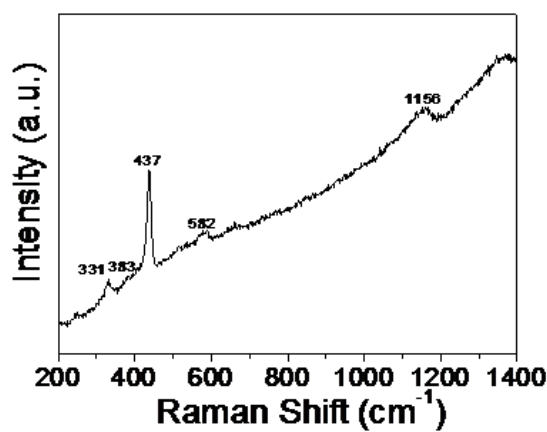


Fig. S10. Raman spectrum of the ZnO octahedrons.

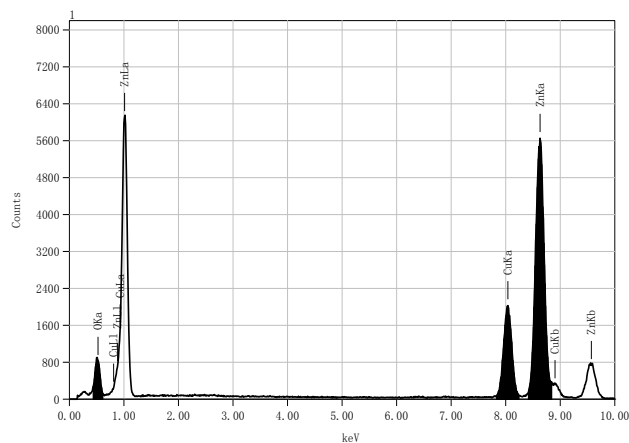


Fig. S11. EDS spectrum of the ZnO octahedrons.