

Support Information

Exploring the unique electrical properties of metastable BiPO_4 through
switchable phase transitions

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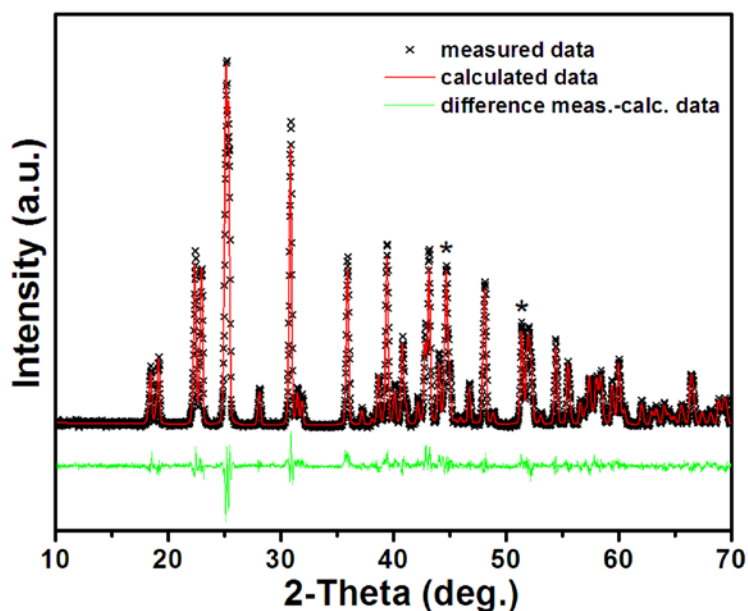


Fig. S1 Rietveld fitting on powder X-ray diffraction data of HTMP prepared via heating treatment over HP at 900 °C for 2 h ($R_{wp}=0.1152$, $R_p=0.0868$, $R_{-blnk}=0.0795$, and $\chi^2=2.023$).

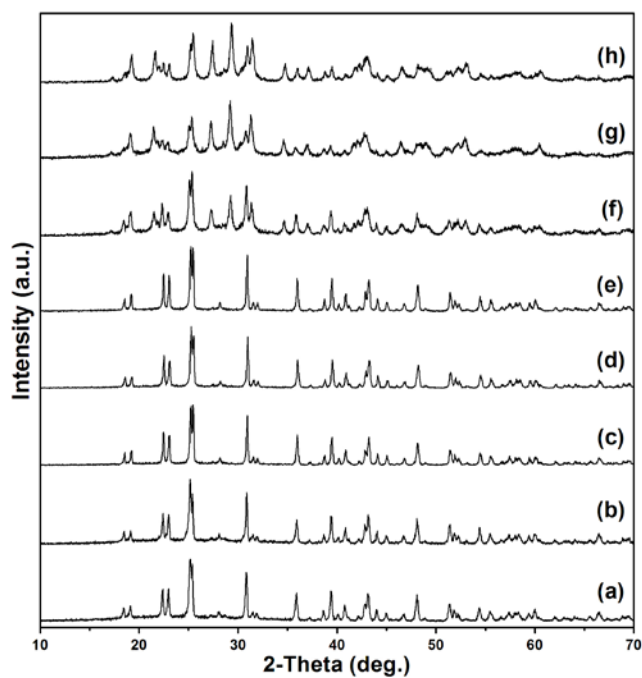


Fig. S2 XRD patterns of (a) HTMP and the products obtained after ball milling HTMP for different time intervals at a bowl rotation speed of 60 r/min: (b) 2 min, (c) 5 min, (d) 60 min, and (e) 120 min; and at a bowl rotation speed of 180 r/min: (f) 30 min, (g) 60 min, and (h) 90 min.

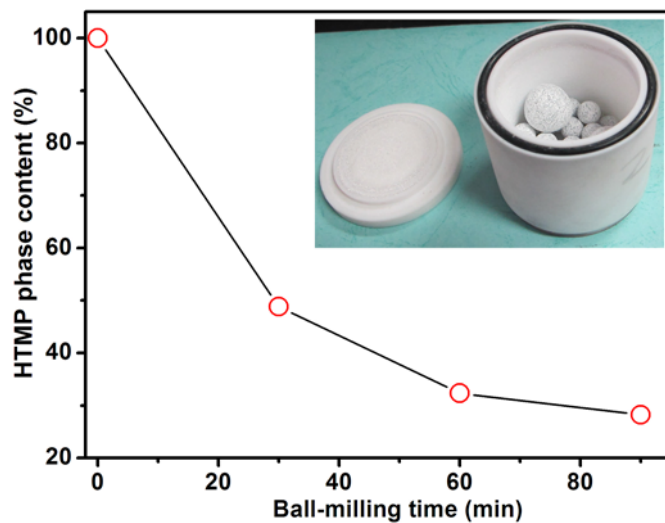


Fig. S3 Ball-milling time dependence of phase content of HTMP. Inset shows the balls and bowl of ball-milling container.

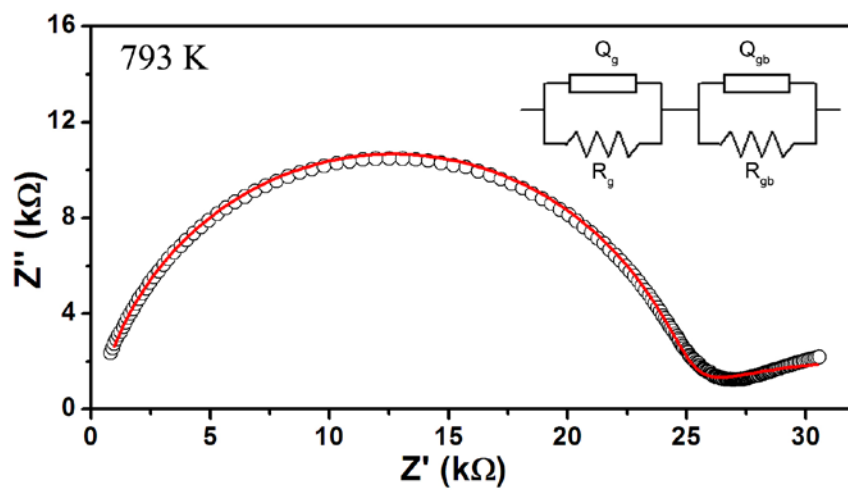


Fig. S4 Complex impedance plots for as-prepared HTMP measured at 793 K. Solid lines are the data fit results using the equivalent circuit model illustrated in inset.

Table S1 Lattice parameters and atomic positions for HTMP and the products LTMP obtained through hand-grinding by Rietveld refinement using GSAS program.

Sample	Lattice parameters	Atom	Site	x	y	z	
HTMP	P2 ₁ /m(11)	Bi	2e	0.1433	0.2500	0.1681	R _{wp} =0.1152
	a=6.7550(3) Å	P	2e	0.3782	0.7500	0.3134	R _p =0.0868
	b=7.0712(2) Å	O1	2e	0.6659	0.7500	0.2378	R _{blnk} =0.0795
	c=4.7060(1) Å	O2	2e	0.6158	0.2500	0.3698	χ ² =2.023
	β=96.280(2)	O3	4f	0.2214	0.5796	0.1808	
	V=161.55(1) Å ³						
LTMP	P2 ₁ /n(14)	Bi	4e	0.2871	0.1409	0.0856	R _{wp} =0.1168
	a=6.7600(5) Å	P	4e	0.3038	0.1294	0.06067	R _p =0.0919
	b=6.9450(5) Å	O1	4e	0.2767	-0.0082	0.4341	R _{blnk} =0.0879
	c=6.4825(4) Å	O2	4e	0.3775	0.3262	0.5336	χ ² =3.263
	β=103.700(6)	O3	4e	0.4489	0.1744	0.8153	
	V=295.69(4) Å ³	O4	4e	0.1112	0.1925	0.6739	