

## Supporting Information

### **Self-Template Synthesis of $ATiO_3$ (A = Ba, Pb and Sr) Perovskites for Photocatalytic Removal of NO**

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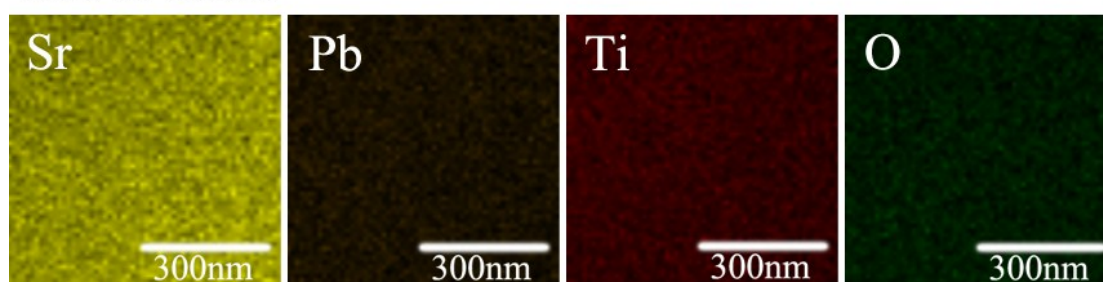
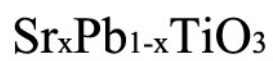
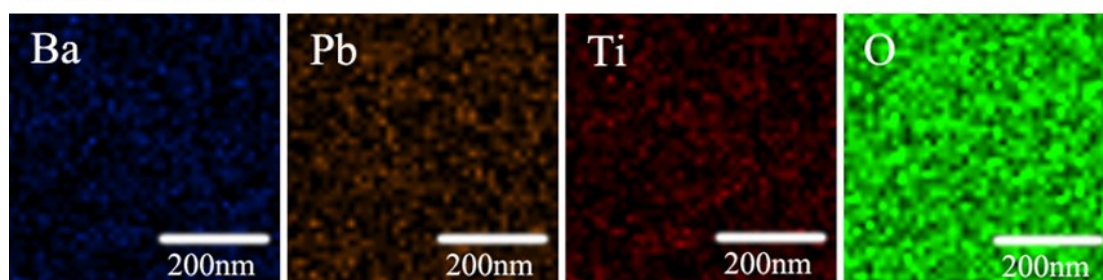
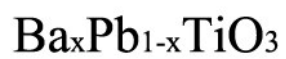
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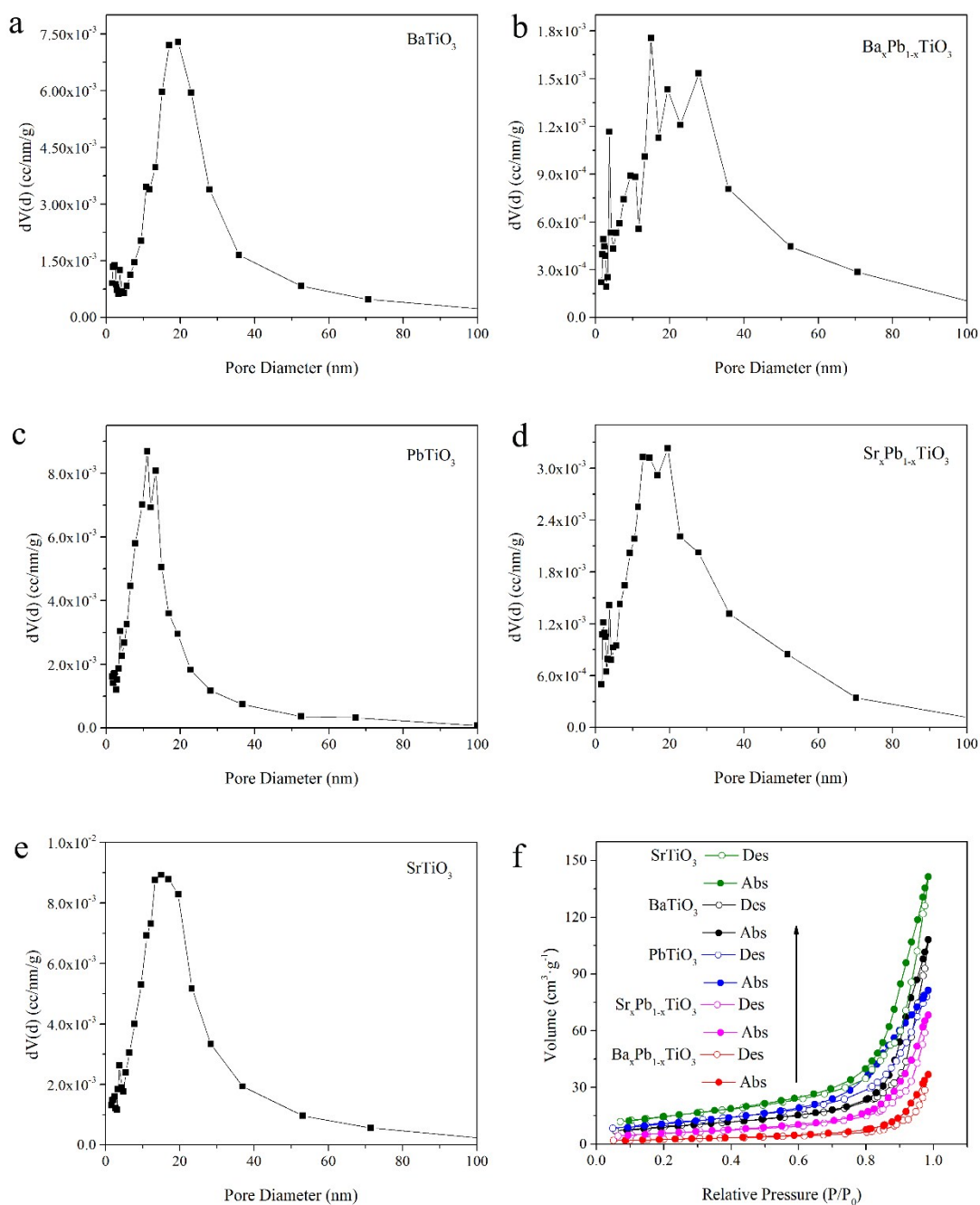
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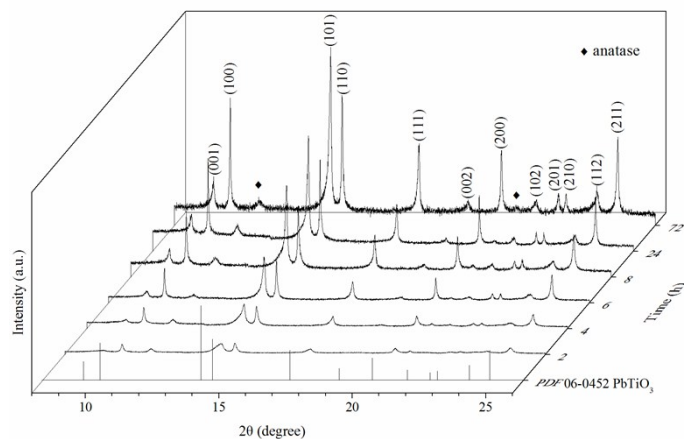
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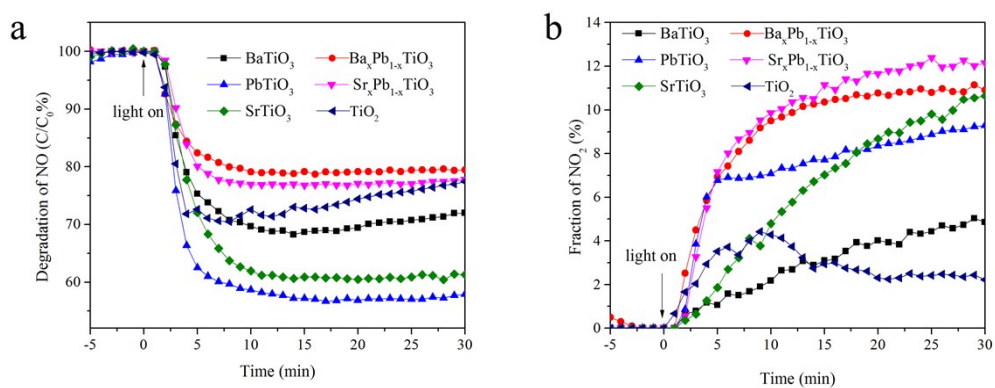
**Fig. S1** EDXS elemental mappings of  $\text{Ba}_x\text{Pb}_{1-x}\text{TiO}_3$  and  $\text{Sr}_x\text{Pb}_{1-x}\text{TiO}_3$ .



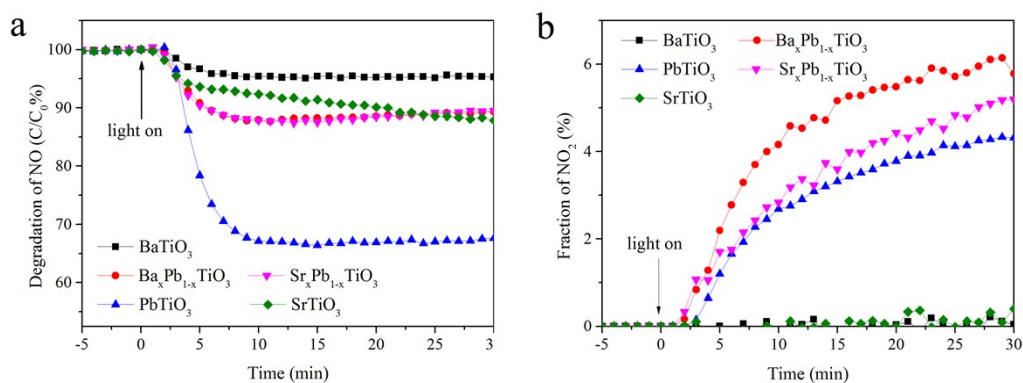
**Fig.S2** Pore diameter distributions of (a)  $\text{BaTiO}_3$ , (b)  $\text{Ba}_x\text{Pb}_{1-x}\text{TiO}_3$ , (c)  $\text{PbTiO}_3$ , (d)  $\text{Sr}_x\text{Pb}_{1-x}\text{TiO}_3$  and (e)  $\text{SrTiO}_3$ , and (f) nitrogen adsorption-desorption curves of all the samples.



**Fig. S3** XRD patterns of PbTiO<sub>3</sub> obtained at different reaction time at 160 °C



**Fig. S4** Concentration changes of NO (a) and NO<sub>2</sub> (b) over time in the presence of 60 mg of ATiO<sub>3</sub> or {001} TiO<sub>2</sub> nanosheets under illumination. Light source: 150 W commercial tungsten halogen lamp. Light source: 150 W commercial tungsten halogen lamp, flowing rate of air: 1.51 L/min; flowing rate of NO: 12.1 mL/min.



**Fig. S5** Photocatalytic reaction of (a) NO removal and (b) NO<sub>2</sub> evolution under visible-light irradiation of all samples. Light source: 150 W commercial tungsten halogen lamp with 420 nm cut-off filter, flowing rate of air: 1.51L/min; flowing rate of NO: 12.1 mL/min.