

**Supplementary information:**

XRD patterns of  $\text{SrTiO}_3$  and  $\text{BaTiO}_3$  have been shown below. Each of the graphs contains XRD patterns of as-received perovskites along with the patterns of the as-milled perovskites and after they are heat treated at 900 °C. There is no change detected in the peak positions. The peaks represent the corresponding main perovskite phases. The peak broadening is presumably coming due to grain refinement and lattice strain introduced by ball milling.

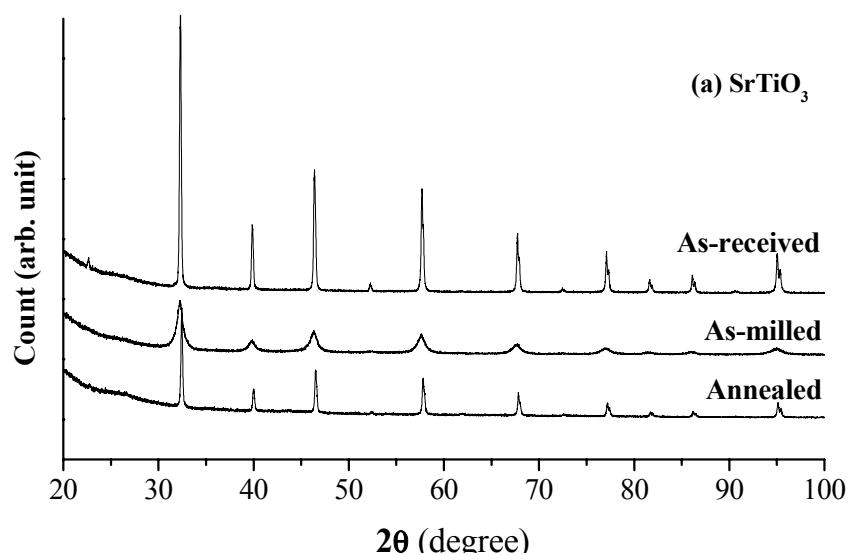


Fig. S1: XRD pattern of as-received, as-milled and annealed STO (900 °C).

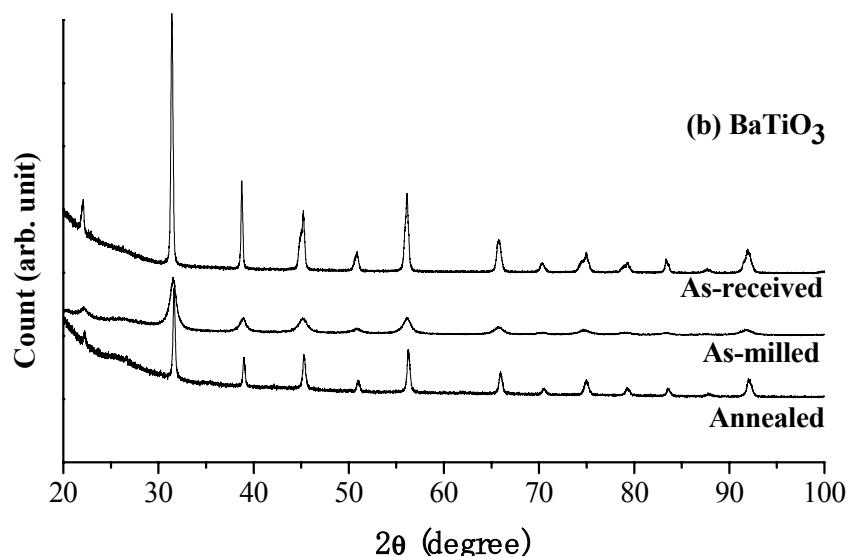


Fig. S2: XRD pattern of as-received, as-milled and annealed BTO (900 °C)