

## Supplementary information

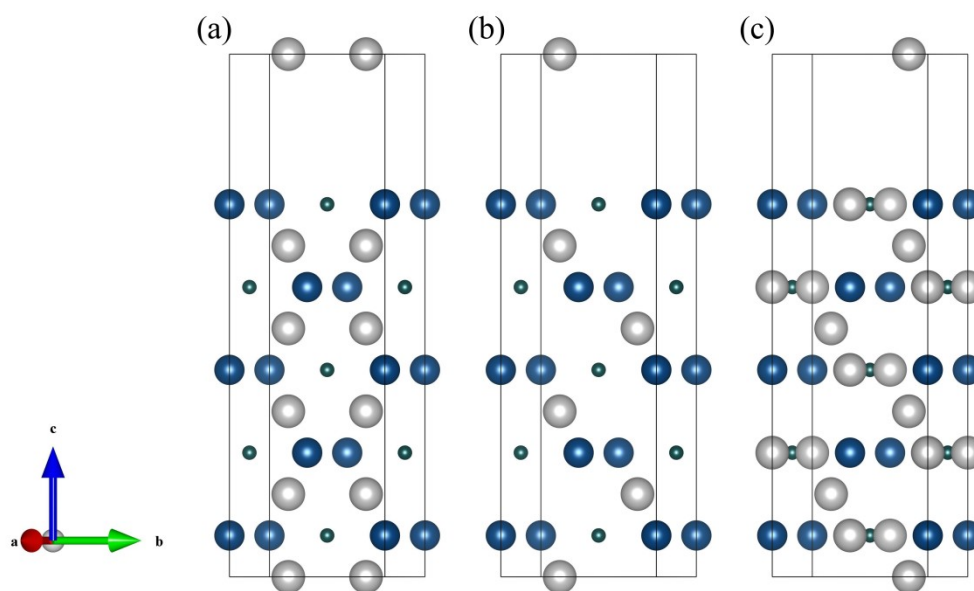


Fig.1 The three models of  $\text{SrTiO}_{3-\delta}$  in  $[110]$  direction (a)  $\text{SrTiO}_{3-\delta-1}$ , (b)  $\text{SrTiO}_{3-\delta-2}$ , (c)  $\text{SrTiO}_{3-\delta-3}$

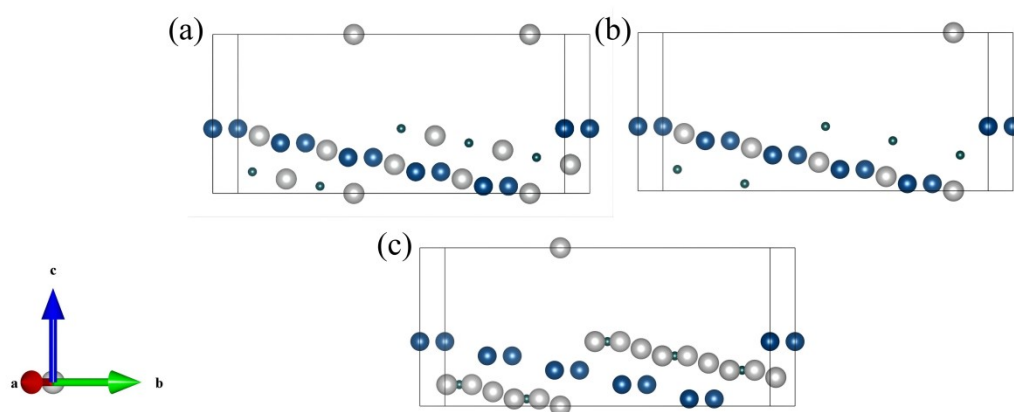


Fig.2 The three models of  $\text{SrTiO}_{3-\delta}$  in  $[510]$  direction (a)  $\text{SrTiO}_{3-\delta-1}$ , (b)  $\text{SrTiO}_{3-\delta-2}$ , (c)  $\text{SrTiO}_{3-\delta-3}$

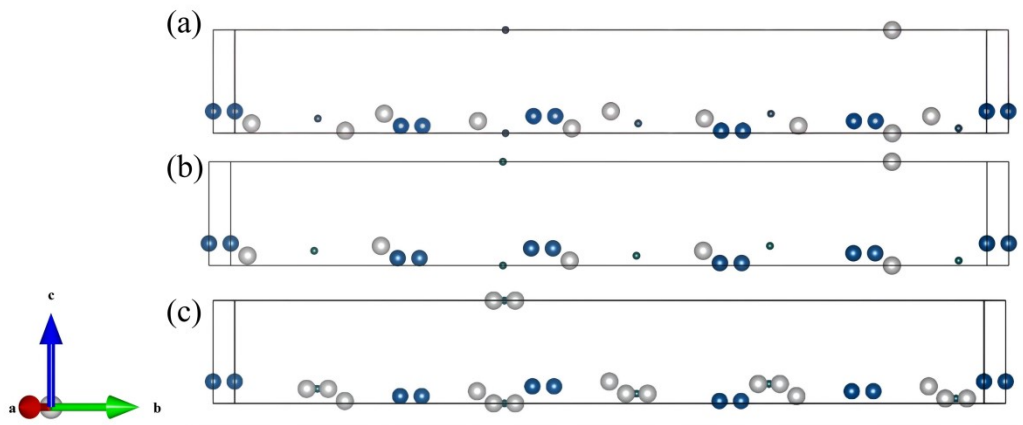


Fig.3 The three models of  $\text{SrTiO}_{3-\delta}$  in  $[12\ 5\ 0]$  direction (a)  $\text{SrTiO}_{3-\delta-1}$ , (b)  $\text{SrTiO}_{3-\delta-2}$ , (c)  $\text{SrTiO}_{3-\delta-3}$

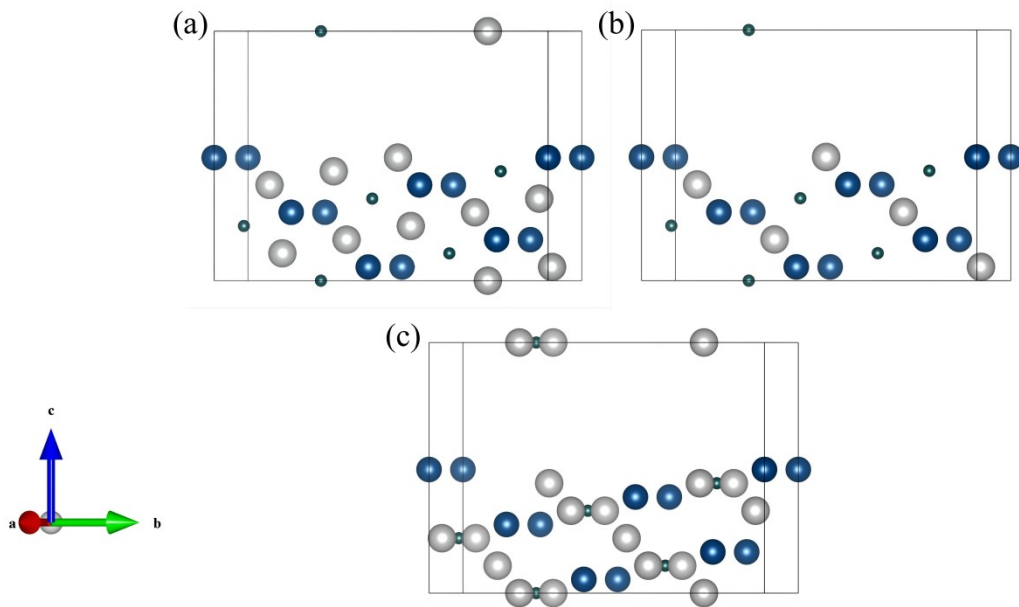


Fig.4 The three models of  $\text{SrTiO}_{3-\delta}$  in  $[320]$  direction (a)  $\text{SrTiO}_{3-\delta-1}$ , (b)  $\text{SrTiO}_{3-\delta-2}$ , (c)  $\text{SrTiO}_{3-\delta-3}$

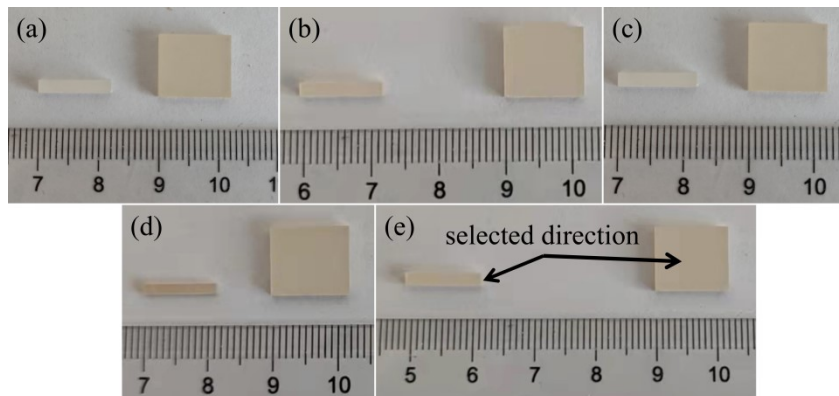


Fig.5 The real image of the  $\text{SrTiO}_{3-\delta}$  samples in different crystal orientations after directional cutting. (a)  $[100]$ , (b)  $[110]$ , (c)  $[510]$ , (d)  $[12\ 5\ 0]$  and (e)  $[320]$ .