Supporting Information

Boosting molecular oxygen activation of $SrTiO_3$ by engineering exposed facet for high efficient photocatalytic oxidation

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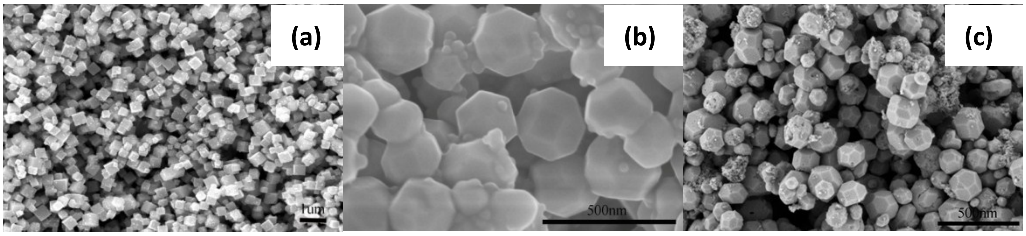

Figure S1. The SEM images of samples $SrTiO_3$-001 (a), $SrTiO_3$-110-1 (b) and $SrTiO_3$-110-2 (c).

Table S1.The fraction of exposed facets in the samples.

$SrTiO_3$	Facet fraction	
	001（%）	110（%）
$SrTiO_3$-001	100	0
$SrTiO_3$-110-1	34.6	65.4
$SrTiO_3$-110-2	12.5	87.5

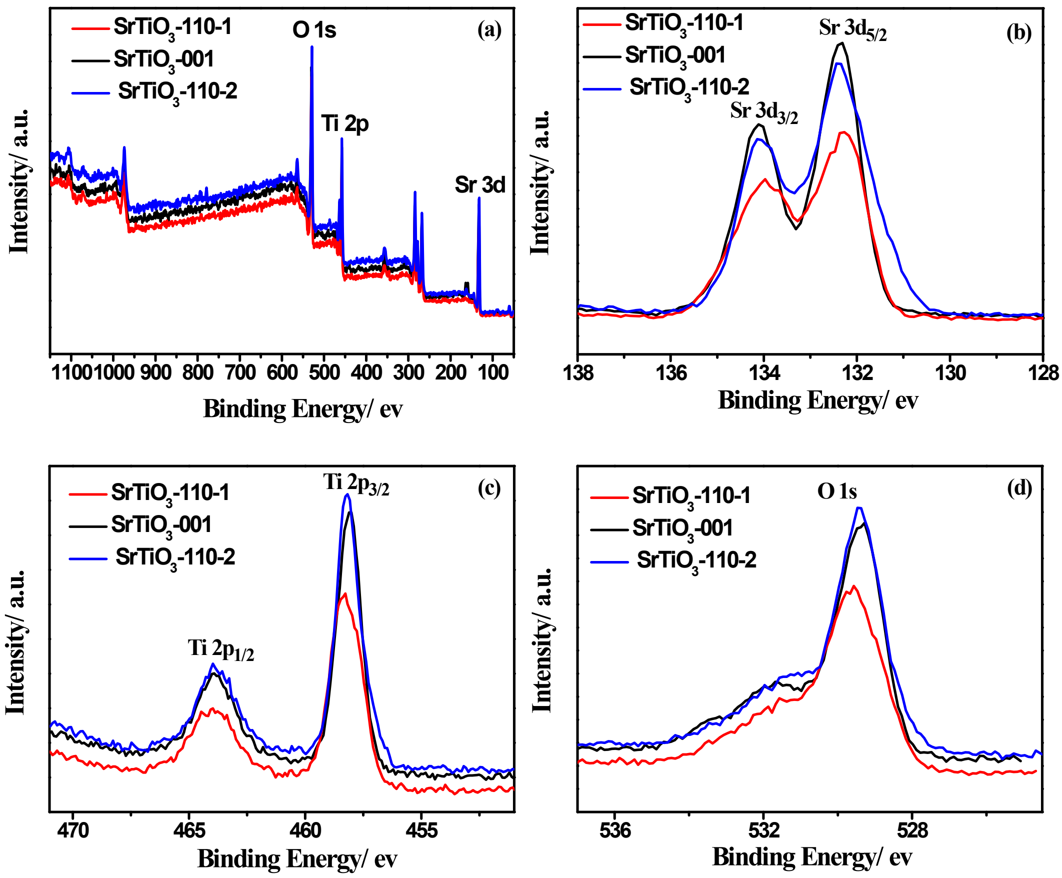

Figure S2. XPS spectra of samples: survey (a), Sr (b), Ti (c) and O (d).

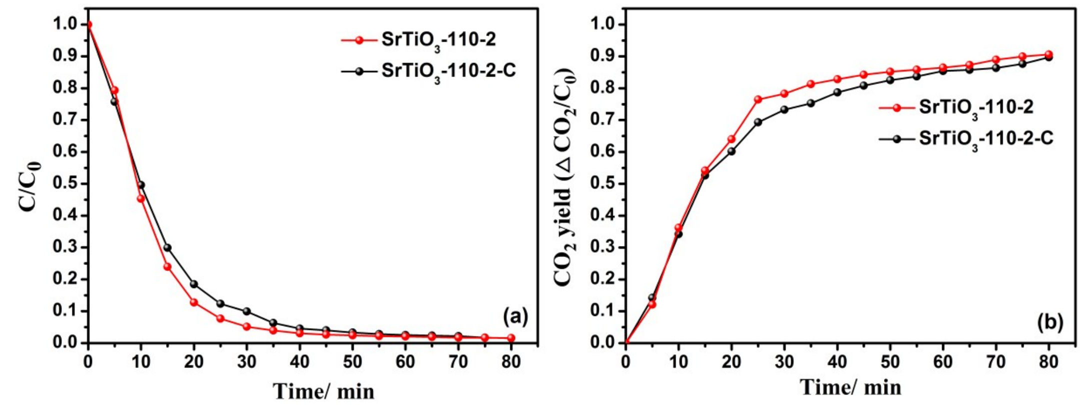

Figure S3. HCHO photocatalytic oxidation (a), the corresponding CO_2 yield (b) of samples under the irradiation of Xe lamp.

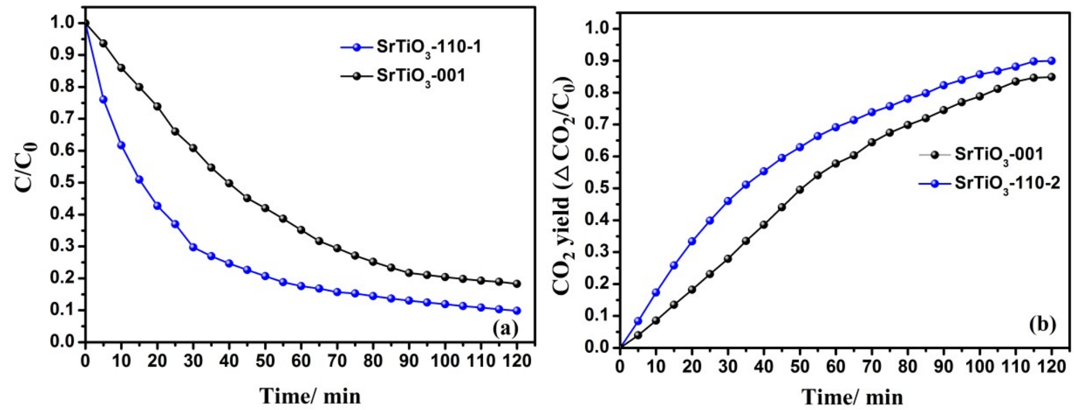

Figure S4. HCHO photocatalytic oxidation (a), the corresponding CO_2 yield (b) of samples under the irradiation of monochromatic light (365 nm).

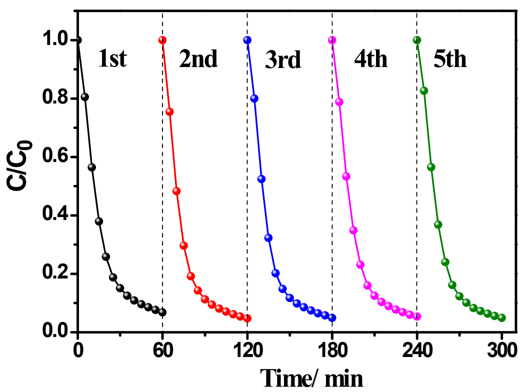

Figure S5.The stability of the sample $SrTiO_3$-110-2 for photocatalytic degradation of HCHO.

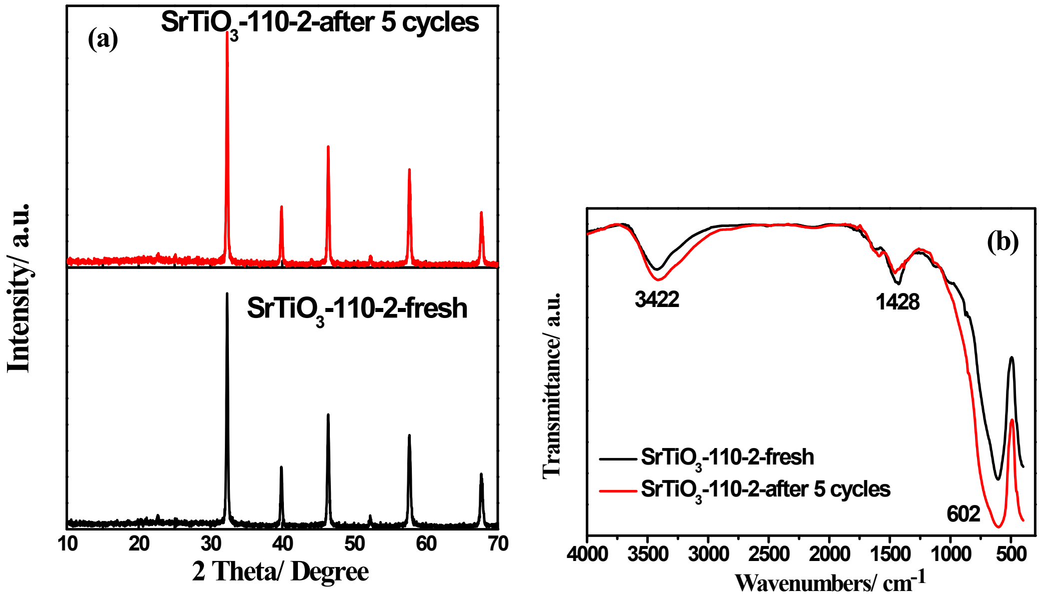

Figure S6. XRD patterns (a) and FTIR spectra (b) of samples $SrTiO_3$-110-2 fresh one without photocatalysis and the used one after 5 runs photocatalysis.