

Supporting information for

## Anisotropy in Photocatalytic Oxidization Activity of $\text{NaNbO}_3$

### Photocatalyst

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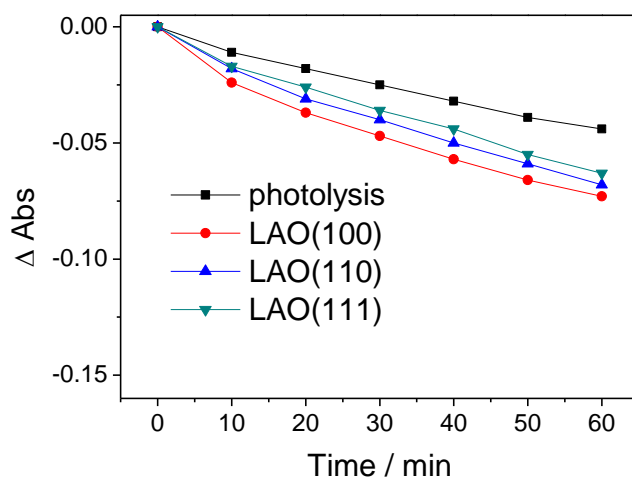
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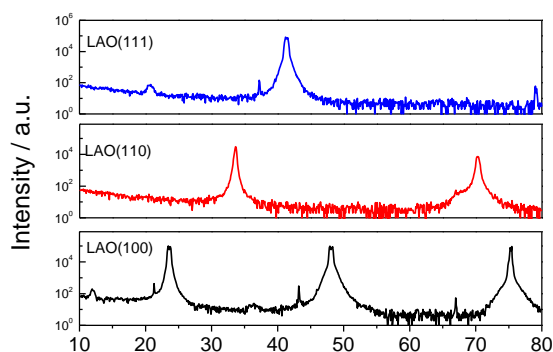
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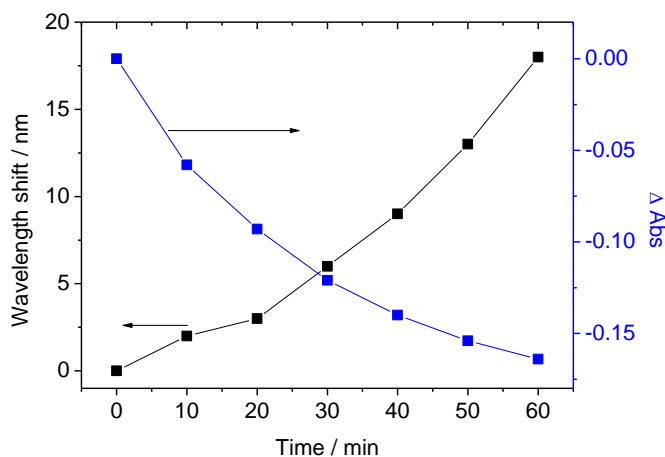
**Figure S1.** Photodegradation of RhB over LAO(100), LAO(110), and LAO(111)

during 1 h of full arc Xe lamp irradiation.

Figure S1 show the Photodegradation of RhB over LAO(100), LAO(110), and LAO(111) during 1 h of full arc Xe lamp irradiation. From the picture, it can be seen that the LAO substrates show a slight higher activity than the photolysis, but much lower than the oriented NN films. The increasing order is LAO(111) < LAO(110) < LAO(100), which is opposite to that of oriented NN films.



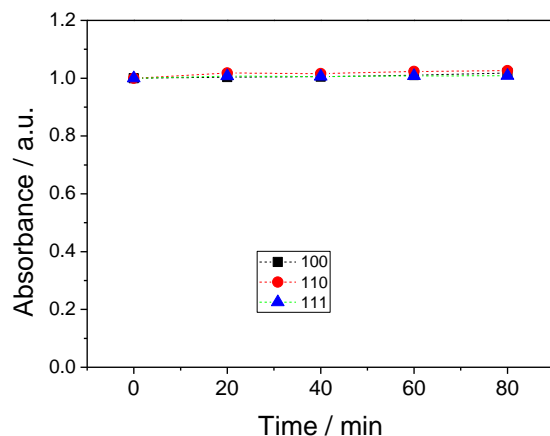
**Figure S2.** XRD patterns of LAO(100), LAO(110) and LAO(111).



**Figure S3** Variation in  $\Delta$ Abs and wavelength shift of RhB over NN/LAO(111) during 1 h of full arc Xe lamp irradiation.

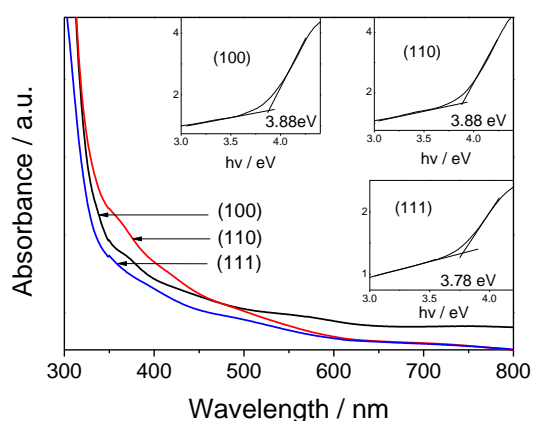
From Figure S3, it is apparent that the absorbance of RhB decrease with

prolonging the irradiation time. And the wavelength of the main peak shifts to lower wavelength. The similar phenomenon was found in the previous study. [Wu, T.; Liu, G.; Zhao, J.; Hidaka, H.; Serpone, N. J. Phys. Chem. B 1998, 102,5845-5851; ]



**Figure S4** Variation of RhB concentration during the dark reaction.

Figure S4 shows the variation of RhB concentration during the dark reaction. No obvious changes in the RhB absorbance for each sample was observed, implying that there is no obvious difference in adsorption property.



**Figure S5** UV/Vis absorption spectra of NN/LAO(100), NN/LAO(110), and NN/LAO(111). The insets are the plots of band gap estimation.

Figure S5 shows the UV/Vis absorption spectra of NN/LAO(100), NN/LAO(110), and NN/LAO(111) and the plots of band gap estimation. In the plots of band gap estimation, the scattering was considered. The band gap was evaluated from the crossing point between the threshold linear fit and the background linear fit, [Perego, M.; Seguni, G.; Scarel, G.; Fanciulli, M.; Wallrapp, F. J. *Appl. Phys.* 2008, 103, 043509]