

Supplementary

# In-situ Growth of Au on KTaO<sub>3</sub> Sub-Micron Cubes via Wet Chemical Approach for Enhanced Photodegradation of p-Nitrophenol

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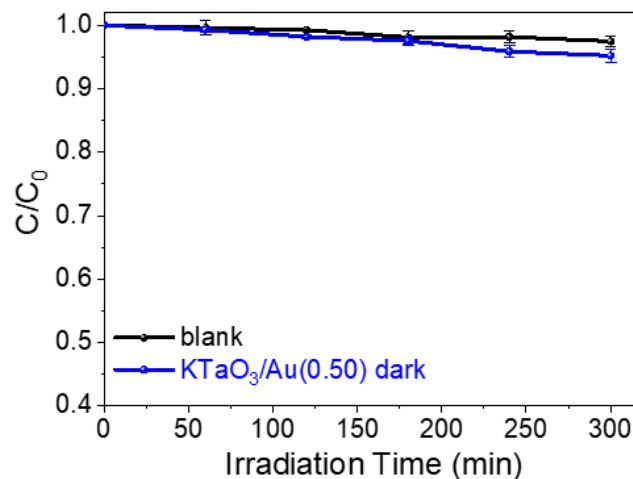
**Table 1.** Lattice mismatches of KTaO<sub>3</sub> and Au nanoparticles.

Au	Au (111)	Au (111)	Au (111)	Au (200)	Au (200)	Au (200)
KTaO <sub>3</sub>	KTaO <sub>3</sub> (100)	KTaO <sub>3</sub> (110)	KTaO <sub>3</sub> (111)	KTaO <sub>3</sub> (100)	KTaO <sub>3</sub> (110)	KTaO <sub>3</sub> (111)
Lattice Mismatch (%)	18.1 <sup>a</sup>	16.7 <sup>b</sup>	2.17 <sup>b</sup>	2.51 <sup>a</sup>	27.7 <sup>b</sup>	11.3 <sup>b</sup>

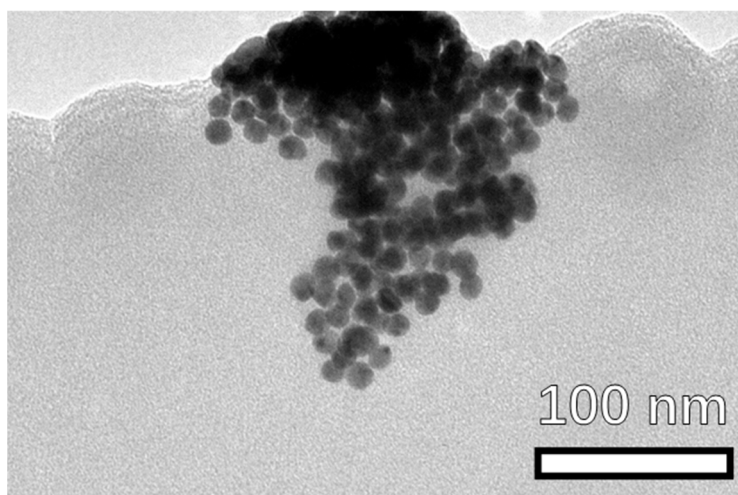
<sup>a</sup> n = 2; <sup>b</sup> n = 1.

The mismatches are calculated by the definition given by the equation:

$$\text{Mismatch} = \frac{|\text{lattice parameter of KTaO}_3 - n \times \text{lattice parameter of Au}|}{\text{lattice parameter of KTaO}_3}$$



**Figure 1.** The degradation curves of p-nitrophenol with KTaO<sub>3</sub>/Au(0.5) in dark condition.



**Figure 2.** The TEM image of the single Au nanoparticles.



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