**Additional file 1**

**Performance enhancement of CdS/CdSe quantum dot sensitized solar cells with (001)-oriented anatase TiO2 nanosheets photoanode**

(Manuscript Number: NARL-D-18-00600)

* *Calculation of the percentage of the exposed (001) facets in anatase TiO2 NSs and NPs:*

From SEM, HRTEM and XRD analyses, we can construct the structures of anatase TiO2 NS and NP, as shown below.

(001)

(101)

Width: W

Length: L

W’

L'

θ

t

Width: W

(001)

(101)

Length: L

W’

L'

θ

t

A- TiO2 NS

A- TiO2 NP

 For anatase TiO2 NSs, the angle between the (001) and (101) facets has been found to be 68.3o [Ref. 1]. The percentage of the exposed (001) facets can then be estimated using the following equation [Ref. 2]:

where L, W, and t are respectively the length, width, and thickness of TiO2 NS, and L = L’+ and W = W’ +. We randomly chose various NSs and obtain the percentage of the exposed (001) facets approximately equal to 70%.

By the same way, the percentage of exposed (001) facets in anatase P-25 NPs was found roughly below 10%. However, it is worth to note that only about 80 % of P-25 NPs are anatase, i.e., about 20% are rutile. Therefore, for theP-25 NPs, the percentage of exposed (001) facets is less than 10%, with over 90% dominated by the (101), (110), etc. facets.