THE JOURNAL OF PHYSICAL CHEMISTRY C

Addition/Correction

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Correction to "Correlation between Cell Performance and Physical Transport Parameters in Dye Solar Cells"

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J. Phys. Chem. C **2012**, *116* (1), 1151−1157; DOI: 10.1021/jp205697t

CORRECTION

We found a scale error reporting data in Figure 5 of the above work. Here, we report the corrected figure. The text has not been changed, but we report it here for clarity.

From the simulation data, it is possible to estimate the electron diffusion length using eq 1.

$$\lambda_e(n_e) = \sqrt{D_e(n_e)\tau(n_e)} \tag{1}$$

For $\beta < 1$, λ_e varies with the working point, and due to its dependence on the electron density, it reduces down to 50% when the working condition proceeds toward the short circuit (see Figure 1).

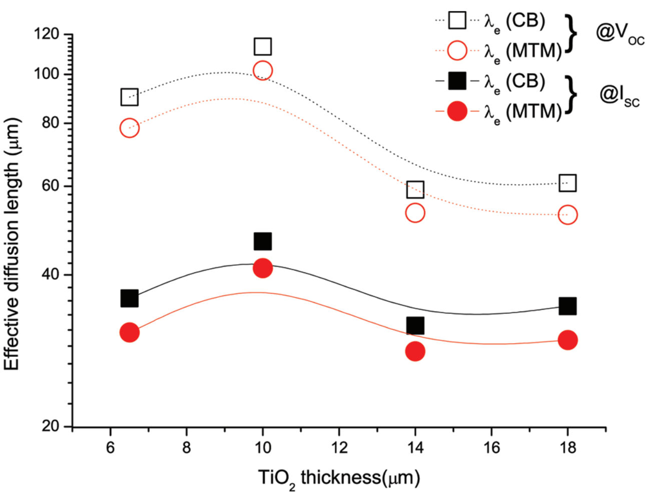

Figure 1. Dependence of λ with the TiO_2 thickness in short circuit (filled symbols) and open circuit (empty symbols) working conditions for set S_1 in the CB model (black) and MTM (red).

Moreover, there is a reduction of the λ_e for MTM with respect to the CB model. This is a clear consequence of the Multiple Trapping Model, where the diffusion path of the electrons is quenched by the trap-and-release process and both the effective diffusion coefficient $(D_e(n_e))$ and the electron lifetime $(\tau_e(n_e))$ present an additional electron density dependence with respect to the case $a = 1$, as shown in eq 2 and eq 3.

$$D_e(n_e) = \frac{D_0}{a}\left(\frac{n_e}{N_t}\right)^{\frac{1-a}{a}}\left(\frac{N_c}{N_t}\right) \tag{2}$$

$$\tau(n_e) = \tau_0\frac{a}{\beta}\left(\frac{n_e}{N_t}\right)^{\frac{1-\beta}{a}}\left(\frac{N_t}{N_c}\right) \tag{3}$$

$$\tau_0 = \frac{1}{k_0}\frac{n_{I^-}}{n_{I_3^-}} \tag{4}$$

Published: March 7, 2012

