Response to Reviewer 1 Comments

Point 1: Any statistical result strongly depend on the sample size(s). In the present manuscript the sizes vary between 918 and 231 samples (Fig.5). It seems that in each case the ~ 50µm² -SEM image was processed as a whole for obtaining the histograms, mean values and standard deviations. It would be of great interest in how far the results deviate once the sample sizes are changed. On easy way could be to divide i.e. the image of Fig.4a in 2 or 4 subsets and evaluate the results etc. This allows you to extend Table 1 by something like an error of the standard deviation and shows how accurate the parameter is determined.

Response 1: If scanning electron microscope (SEM) observations of each group of samples is shown by multiple images, it is easy to confuse the reader and inconvenient to see the change law. The representative pictures of the 20 monocrystalline silicon wafers are selected and shown in Figs. 4 and 5. In the revised manuscript, the experiments of all the samples obtained from 20 monocrystalline silicon wafer and the corresponding relative standard deviations of the pyramid texture on the surface of the monocrystalline silicon cells have been completed. The results were shown in Figure 6 and the sample data were presented in the form of scatter plots.

Point 2: When $S_h$ is shown in Fig.6 with “error bars” together with the experimental data of the reflectance (in optics this is the more precise term for the measurement on extended rough surfaces) measurements on 20 samples it allows the reader to judge how sensitive the statistical standard deviation responds to changes in the texture as can be seen in the reflectance results. Please insert the wavelength(s) of the incident light source in your manuscript.

Response 2: We followed the suggestions. In the revised manuscript, “error bars” is added in Figure 7 (original Figure 6). Moreover, we have inserted the wavelength of the incident light source in line 285 of the manuscript.

Point 3: I recommend to add error bars for the parameters shown in Fig. 8 in the same way as it was done in Fig.7. When I look to Figs. 7 and 8 I find it quite surprising that the rather large reduction of the minority carrier lifetime from ~12µs down to 4µs (1/3) only results in a small reduction of the PCE and $I_{sc}$.

Response 3: Error bars have been added in Figure 9 (original Figure 8). The rather large reduction of the minority carrier lifetime from ~12µs down to 4µs (1/3) only results in a small reduction of the PCE and $I_{sc}$. The corresponding reason is that the factors affecting the PCE and $I_{sc}$ of the monocrystalline silicon cells are various, although the minority carrier lifetime can promote the PCE and $I_{sc}$ of the monocrystalline silicon cells. Therefore, the change between the two is not proportional.

Point 4: Table 2 for me is misleading and should be improved because the solar cell parameters for the case of an etch time of 20 min is the mean of 20 samples (errors should be included). Whereas the results for the etch time of 18.1 min seems to apply for one single cell only as suggested by the
In Table 2, the solar cell parameters for the case of an etch time of 20 min is the mean of 20 samples while the solar cell parameters for the case of an etch time of 18.1 min is also the mean of 20 samples. In Fig. 10(a) and Fig. 10 (d), the solar cell parameters ($S_h$ and the reflectivity) is the mean of 20 samples. The results in Fig. 10(b) and Fig. 10 (c) is applied for one sample. To make the results be clearly described, we add a new figure (Figure 12) to illustrate the experimental results. The Table 2, which may mislead the readers, is thus deleted. Moreover, the Figure 11 has been improved. Since a new figure (Figure 6) has been added in the revised manuscript, it follows that the “Figure 10” is denoted by “Figure 11” in the revised paper.