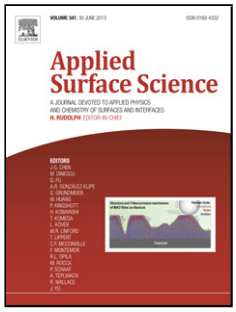

Title: Highly efficient industrial large-area black silicon solar cells achieved by surface nanostructured modification

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PII: S0169-4332(15)02433-2
DOI: http://dx.doi.org/doi:10.1016/j.apsusc.2015.10.035
Reference: APSUSC 31516

To appear in: *APSUSC*

Received date: 28-7-2015
Accepted date: 6-10-2015

Please cite this article as: P. Li, Y. Wei, Z. Zhao, X. Tan, J. Bian, Y. Wang, C. Lu, A. Liu, Highly efficient industrial large-area black silicon solar cells achieved by surface nanostructured modification, *Applied Surface Science* (2015), http://dx.doi.org/10.1016/j.apsusc.2015.10.035

***Highlights (for review)**

Highlight

We achieved a 19.03% efficient large area black silicon solar cell

This efficiency is 0.18% higher than that of standard silicon solar cells with pyramidal surfaces.

The local surface recombination velocity is successfully suppressed to 112 cm/s.

It results in an increase in the IQE of black silicon solar cells at short wavelength region.