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

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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.

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