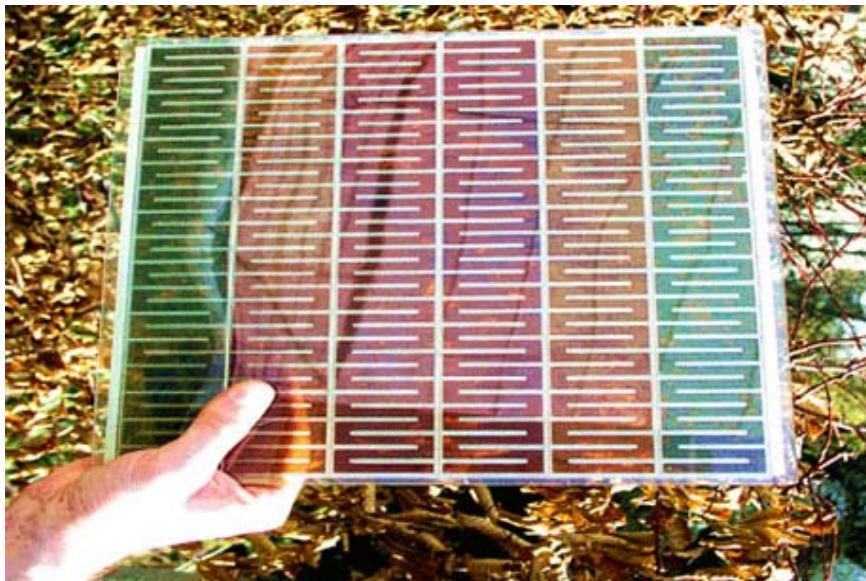


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## Solar Power Breakthrough: Solar Dyes Could Be Put In Windows, Clothing



Researchers from the Nanomaterials Research Centre at Massey University in New Zealand have developed synthetic dyes that can be used to generate electricity at one tenth of the cost of current silicon-based solar panels. These photosynthesis-like compounds work in low-light conditions and can be cheaply incorporated into window-panes and building materials, thereby turning them into generators of electricity.

Dr Wayne Campbell and researchers in the center have developed a range of coloured dyes for use in dye-sensitized solar cells. The synthetic dyes are made from simple organic compounds closely related to those found in nature. The green dye Dr Campbell is synthetic chlorophyll derived from the light-harvesting pigment plants use for photosynthesis. Other dyes being tested in the cells are based on hemoglobin, the compound that give blood its color.

Dr Campbell says that unlike the silicon-based solar cells currently on the market, the 10x10cm green demonstration cells generate enough electricity to run a small fan in low-light conditions – making them ideal for cloudy climates. The dyes can also be incorporated into tinted windows that trap to generate electricity.



He says the green solar cells are more environmentally friendly than silicon-based cells as they are made from titanium dioxide – a plentiful, renewable and non-toxic white mineral obtained from New Zealand’s black sand. Titanium dioxide is already used in consumer products such as toothpaste, white paints and cosmetics.

“The refining of pure silicon, although a very abundant mineral, is energy-hungry and very expensive. And whereas silicon cells need direct sunlight to operate efficiently, these cells will work efficiently in low diffuse light conditions,” Dr Campbell says.

“The expected cost is one 10th of the price of a silicon-based solar panel, making them more attractive and accessible to home-owners.”

See: [Massey University Press Release](#)

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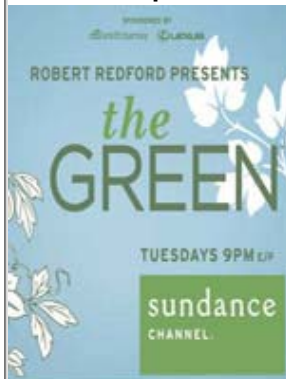
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