

Steel forges foundation for cheaper solar power

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Steel forged railroads, skyscrapers and the automobile industry. Now it may help solar energy become cheaper and more widely available. In a study scheduled for the March 20 issue of ACS' weekly *Journal of Physical Chemistry C*, Finnish scientists report an advance in replacing the single most expensive component of a cutting-edge family of solar cells with less costly material.

These so-called “nanostructured dye solar cells (DSCs)” are a relatively new family of photovoltaic devices. Their simple manufacturing methods are hoped to lead to lower production costs compared to conventional solar cells.

Traditionally, DSCs are deposited on conductively coated glass sheets which accounts for more than 30 percent of the material costs. Preparing DSCs on flexible stainless steel sheets is one way to reduce the costs and also to enhance mass production, according to Kati Miettunen and colleagues at the Helsinki University of Technology. Uncertainties existed, however, over the performance and stability of stainless steel photovoltaics.

In the new study, researchers describe construction of DSCs with stainless steel components and tests of the devices' performance. “It was shown that relatively high efficiencies can be obtained with DSC deposited on stainless steel substrate,” the study said. Subsequent work will investigate the durability of the stainless steel components and make further improvements in these promising solar devices.

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