

Technisches Englisch

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Light-absorbing materials cut solar power cost

Scientists are **researching** new ways of **harnessing** the **sun's rays** that could **eventually** make it **cheaper** for people to use solar energy to power their homes.

The experts at Durham University are **developing** light-absorbing materials for use in the production of **thin-layer** solar photovoltaic (PV) cells that are used to **convert** light energy into electricity. The four-year project **involves** experiments on a **range** of different materials that would be less expensive and more **sustainable** to use in the manufacturing of solar panels. **Thicker** silicon-based cells and **compounds containing** indium, a **rare** and expensive metal, are more commonly used to make **solar panels** today.

The research, **funded by** the Engineering and Physical Sciences Research Council (EPSRC) Supergen Initiative, focuses on developing thin-layer PV cells using materials such as **copper indium diselenide** and cadmium telluride. **Currently** the project is entering a new phase for the development of cheaper and more sustainable variants of these materials.

The Durham team is also working on manipulating the **growth** of the materials so they form a **continuous** structure, which is **essential** for **conducting** the energy **trapped** by solar panels before it is turned into **usable** electricity. This will help **improve** the efficiency of the thin-layer PV cells. It is hoped that the development of more **affordable** thin-film PV cells could **lead to** a reduction in the cost of solar panels for the **domestic market** and an **increase** in the use of solar power. The thin-layer PV cells would be used to make solar panels that could be **fitted to roofs** to help **power** homes, with any **surplus** electricity being **fed back** to the national **electricity grid**. This could lead to lower **fuel bills** and less **reliance** on burning

fossil fuels as a way of helping to generate electricity.

Professor **Ken Durose**, director of the Durham Centre for Renewable Energy, who is leading the research, says: „One of the main **issues** in solar energy is the cost of materials and we **recognise** that the cost of solar cells is slowing down their **uptake**. If solar panels were cheap enough so you could buy a system **off the shelf** that **provided** even a **fraction** of your power needs, you would do it. But that product is not there at the moment. The key indicator of cost-effectiveness is how many pounds do you have to spend to get a watt of power out? If you can make solar panels more cheaply, then you will have a winning product.“ To **aid** its research, the university has **taken delivery** of a EUR 2.5 million (£1.7million) **suite** of high-powered electron microscopes, funded by the Science Research Investment Fund, which have **nano-scale resolution** that **enables** scientists to see the effects that currently limit the **performance** of solar cells.

By courtesy of Engineer Live

affordable bezahlbar, finanziell tragbar

aid helfen, unterstützen; Unterstützung

boil kochen

cheap(er) billig(er), günstig(er)

compound Gemisch, Zusammensetzung

conduct leiten

contain beinhalten, enthalten

continuous durchgängig

convert umwandeln

copper indium diselenide Kupfer-Indium-Diselenide

currently gegenwärtig, aktuell, zur Zeit

develop entwickeln

domestic market Binnen-, Inlandsmarkt

electricity grid Stromeinspeisungsnetz, Stromversorgungsnetz

enable ermöglichen, in die Lage versetzen

essential wesentlich, entscheidend

eventual/ly schließlich, endlich (nicht: eventuell)

feed, fed, fed back zurückspeisen

fit to anbauen, anbringen an

fossil fuels fossile Brennstoffe

fraction Bruch, Bruchteil, Anteil

fuel bills Heizkostenrechnungen

funded by finanziert von, durch

growth Wachstum

harness nutzbar machen

improve verbessern

increase Anstieg; (vb) ansteigen

involve einbinden, umfassen, einbeziehen

issue Thema, Anliegen

lead to führen zu

nano-scale resolution Auflösung im Nano-bereich

off the shelf Standard-, serienmäßig

performance Leistung

power (vb) mit Energie versorgen

provide liefern, verfügbar machen

rack Streckbank

range Auswahl, Bereich, Reihe

rare rar, selten

recognise (an)erkennen

reliance Verlass, Verlässlichkeit; hier: Abhängigkeit

research forschen; Forschung

roof Dach

scientist Wissenschaftler

solar panel Sonnenkollektor, Solarbatterie

suite Reihe, Folge, Serie

sun's rays Sonnenstrahlen

surplus Überschuss, Überfluss

sustainable nachhaltig, zukunftsfähig

take delivery übernehmen, abnehmen

thick(er) dick(er)

thin-layer Dünnschicht; dünn-schichtig

torture quälen

trap einfangen

uptake Aufnahme, Annahme, Einsatz

usable nutzbar, brauchbar

P. Zillmer

„How shall I **torture** you today?
Put you on the **rack**?
Boil you in oil? Make you call a
technical support line?“

