



## Solar Cells Track Sun

**INVENTORS • Hongrui Jiang, Chensha Li, Ye Liu**

**WARF: P120269US01**

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a passive tracking mechanism that allows solar cells to continuously face the sun.**

### OVERVIEW

Maximizing how much sunlight strikes a solar panel is one tactic to boost efficiency. Some approaches have tried to imitate heliotropic plants by repositioning the panels to follow the sun. Unfortunately, these systems require tracking mechanisms that are costly, complex and waste power. Other efforts have focused on special materials that directly respond to sunlight. Until now, such designs have tended to fatigue and quickly fail.

### THE INVENTION

UW-Madison researchers have developed a passive solar tracking system utilizing materials that move in response to sunlight.

In the system, a solar cell panel is supported by flexible posts. The posts are made from a composite material, including a liquid crystal elastomer. This material has properties that cause it to contract and tilt when exposed to heat. To further exploit such properties, the material is embedded with carbon nanotubes that act as miniature heat sources, absorbing sunlight and giving off warmth.

### APPLICATIONS

- Solar cell technology

### KEY BENEFITS

- Increases sunlight exposure
- Enhances solar cell output
- Doesn't require power
- Eliminates the need for complicated electromechanical parts

### THE WARF ADVANTAGE

Since its founding in 1925 as the patenting and licensing organization for the University of Wisconsin-Madison, WARF has been working with business and industry to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.



- Works with many types of solar cells

## ADDITIONAL INFORMATION

### Related Technologies

[WARF reference number P130136US01 describes an easy method for recovering the performance of degraded solar cells.](#)

[WARF reference number P100342US01 describes a photovoltaic capacitor for direct solar energy conversion and storage.](#)

[WARF reference number P04002US describes efficient photovoltaic cells that use carbon nanotubes as the photoconducting material.](#)

### Publications

Li C., Liu Y., Huang X. and Jiang H. 2012. Direct Sun-Driven Artificial Heliotropism for Solar Energy Harvesting Based on Photo-Thermo-Mechanical Liquid Crystal Elastomer Nanocomposite. Adv. Funct. Mater. 22, 5166-5174.

### Tech Fields

Clean Technology - Solar technologies

## CONTACT INFORMATION

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