

Transparent Contacts Organic Solar Panel By Spray

Researchers at the University of South Florida have developed a method of fabricating organic solar panels with transparent contacts using a novel layer-by-layer technique.

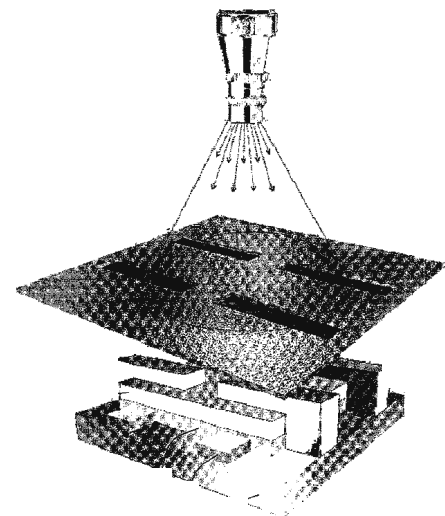
Current materials in conventional solar cells such as silicon wafers are brittle substances that greatly limit applications of solar energy related technology. Newer materials, such as organic solar cells or organic photovoltaics, have attracted recent attention because they may provide a cost-effective solution to expand the use of solar energy for electric power generation. These organic semiconductors are ideal for material modifications because they are chemically and mechanically flexible. However, most organic solar cell devices are developed in laboratories that utilize expensive fabrication processes such as high vacuums. This limits the real potential of organic solar cells in the commercial market.

USF researchers have developed a novel method to fabricate organic solar arrays with transparent contacts using a layer-by-layer spray technique. This fabrication method allows a thin film organic solar module to be fabricated onto multiple substrates including cloth, plastic and glass. This thin film can be rigid or flexible, allowing for a necessary balance between conductivity and transparency. These transparent-contact solar panels utilize a solution based technology to fabricate solar panels in an inexpensive inert gas environment instead of a high-vacuum high-temperature environment. This translates into lower costs, especially for large scale production.

ADVANTAGES:

- Fabricated in an inexpensive, inert gas environment
- Product can be rigid or flexible
- Lower production costs
- Applicable with multiple substrate types

An Organic Solar Array Fabrication Method for Thin Film Solar Modules



A Diagram Illustrating the Fabrication Process of an Inverted Organic Solar Cell

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