

# Wrapped In Solar Blankets



Darren Lipomi  
Associate Professor , NanoEngineering

## CURRENT RESEARCH

### Pioneering the discovery of ultra-low-cost solar technologies

The problem with today's solar panels is that they are expensive, heavy, and fragile. So, imagine if you could take a solar panel thinner than a human hair, ball it up the size of a grapefruit, and unfurl it on a jagged mountainside to catch sunlight. The state-of-the-art flexible solar technology that Dr. Lipomi of University of California, San Diego is working on is called the "solar tarp" -- an inexpensive, extremely lightweight, portable solar module that could be installed anywhere in the world for a small fraction of the cost of current solar technologies.

- This research works on semiconducting materials made of plastic, which in size are a thousand times thinner than a single human hair.
- These materials can absorb light and produce electricity.
- Dr. Lipomi's goal is to design--at the molecular level--inexpensive electronic materials that have the physical properties of rubber.
- Applications of these stretchable semiconductors range from conformable circuits for biomedical devices and robotics to devices for renewable energy.

Skin-like semiconductors have numerous applications for our future energy needs, such as significantly reducing the costs of manufacturing, installing, and repairing solar panels on a massive scale. Additionally, this research on stretchable semiconductors directly impacts the healthcare industry because of their applications in prosthetic sensors and conformable devices for monitoring electrical, chemical, and mechanical signals inside and outside the human body. Dr. Lipomi's research leads to fundamental discoveries and inventions in the field of multifunctional...

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## AFFILIATION

-  University of California, San Diego

## EDUCATION

- Ph.D. in Chemistry and Chemical Biology, 2010 ,Harvard University

## AWARDS

- Postdoctoral Fellowship (at Stanford University), 2010
- Fieser Award Lecture, 2010
- Elected Chair, Graduate Student & Post - Doc Council, 2009

## RESEARCH AREAS

Environment, Clean Energy, Natural Disasters / Emergency

## FUNDING REQUEST

With your donations, Dr. Lipomi's research group will create materials for a "solar tarp" -- an ultra-low-cost and fracture-proof solar panel that can generate energy efficiently for solar utilities, households, disaster-relief, and the developing world.

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