

Nanotechnology may give plastic solar cells a boost

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RIT researches new power supply solutions for BP Solar

Scientists at Rochester Institute of Technology's NanoPower Research Laboratories have received a boost in their search for new power supply solutions. Funding from BP Solar will support their work using [nanotechnology](#).

BP Solar, a leading manufacturer of solar-electric products, has contracted RIT's NanoPower Research Laboratories to develop plastic solar cells using nanomaterials. Total funding for the three-year program is \$250,000.

Until now, lightweight plastic solar cells have remained elusive. During the last decade, scientists struggled to substitute polymers for the expensive, but effective crystalline materials such as silicon, a traditional solar cell material. These attempts produced solar cells with poor efficiencies at converting light into electricity.

RIT researchers, led by Ryne Raffaele, professor of physics and microsystems engineering and director of the NanoPower Research Laboratories, hope to develop an improved polymer solar cell using nanomaterial additives. Raffaele and his team will use a thin polymer film that can be rolled out in sheets. The film will contain nanoscale pieces of semiconductor material and single-walled carbon nanotubes to maximize energy conversion.

This will enable huge sheets of thin film to be cut up and used, Raffaele says, even bent. In contrast, crystalline silicon, which has to be grown, is expensive and easily cracked due to its crystalline nature.

"Nanotechnology, and more specifically nanomaterials, may provide breakthroughs in the way we convert and use readily available energy sources," Raffaele says.

New York state Sen. Hilary Clinton, a proponent of nanotechnology research, made the initial introduction of BP Solar to RIT following a visit to the university's NanoPower Research Laboratories.

"Nanotechnology research and development is important to the economic future of New York and the nation," Clinton says. "I am proud that research institutions like RIT are already playing a leading role in the development of nanotechnology and am pleased that BP Solar recognizes the true quality of that research. This is yet another great example of what we can achieve when we combine the power of New York's world-class educational institutions with leaders in industry and business. I look forward to seeing the results of this great partnership."

RIT established the NanoPower Research Laboratories in 2001 as a series of four laboratories specializing in power devices and nanomaterials. In addition to a staff of research scientists, 15 undergraduate and graduate students work in the labs, gaining hands-on experience in cutting-edge technical research.

Source: RIT

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