

NEWS RELEASE

DATE: September 21, 2005

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UNH and GT Solar awarded U.S. Air Force grant

New thin films process has many potential applications

A [high-resolution version](#) of the image below is available. See [caption](#) at bottom of page.

DURHAM, N.H.—The University of New Hampshire and GT Solar Technologies were recently awarded a U.S. Air Force grant to commercialize a new process with a host of potential applications, including lowering the cost of photovoltaic cells and shielding electronics from interference.

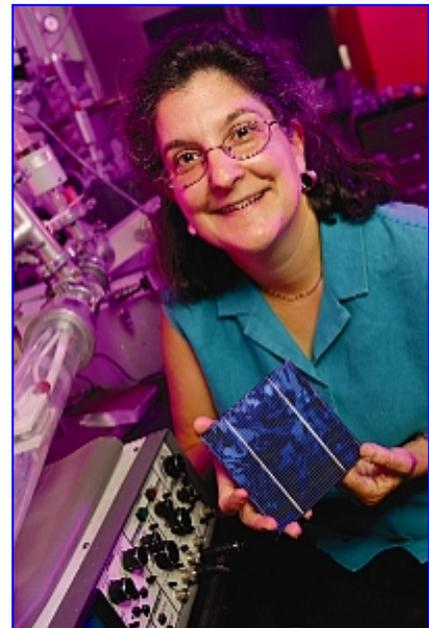
UNH Associate Professor Carmela Amato-Wierda and the Merrimack-based photovoltaic production line manufacturer received the \$100,000 Small Business Technology Transfer grant from the U.S. A.F. Office of Scientific Research. The grant will help them develop a new process invented by Amato-Wierda that creates very thin coatings and would allow solar cells to be produced faster.

"I'm proud of it, because it's not everyday that an idea turns into something with commercial significance," said Amato-Wierda, an expert in chemical vapor deposition who teaches in UNH's Materials Science Program. "In this case, we have the potential to improve the solar energy availability for people all over the world."

To prevent light from escaping once it enters, solar cells must be coated with an anti-reflective coating. Currently, this is done in a vacuum chamber, which creates a bottleneck in the production process. But Amato-Wierda's process takes place at atmospheric pressure.

Working with UNH graduate student Christopher B. Blais, now at Intel Corporation, and a small grant from the N.H. Industrial Research Center, Amato-Wierda built a crude working model in her lab. Preliminary results show her process is just as fast as the vacuum process—an important factor for GT Solar because they want to make equipment that can produce 1,500 cells per hour—and she hasn't yet begun to tweak factors such as temperature to see if she can further improve it. The new grant will allow Amato-Wierda and GT Solar to build an industrial scale prototype.

UNH has filed for a patent on the process. The Air Force is interested in using



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it to coat electronics with metal to shield them from electromagnetic and radio frequency interference.

“What’s advantageous about our process is its simplicity and the low cost of the equipment. It leads you to start thinking about other applications in the coatings industry, like hardened surfaces for tools,” said Amato-Wierda. “There could be all sorts of biological applications —can you use this procedure to quickly treat surfaces for properties such as cell adhesion? There’s no reason you couldn’t use this to treat polymers to change their surface characteristics.”

PHOTO CAPTION

Speedier Solar Cells: UNH Associate Professor of Materials Science Carmela Amato-Wierda holding a solar cell coated using the new process she invented, which could allow solar cells to be produced faster and at less cost.

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