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## Do You Have a Great Idea Using Nanotechnology?

The Center offers a service, free to PA companies and researchers which matches an innovative product idea to an enabling nanotechnology. Go to the [Center's Website](#) to download the form.

## 2010 AFRL Showcase

The 4th Annual AFRL NanoMaterials Technology Showcase Day will be held on August 11, 2010. Invited portfolio companies will present the technology and commercialization developments funded by the Center, to the staff of the Air Force Research Lab at the Wright-Patterson Air Force Base in Dayton, OH. The presenting portfolio companies include: Industrial Learning Systems, Kurt J. Lesker Company, nanoGripteck LLC, Strategic Polymer Sciences Inc.

## Round 8 Comes to a Close

The Center just finished its 8th RFP Round on July 21, 2010. With the funding support from the Department of Community & Economic Development for the Commonwealth of Pennsylvania and the Air Force Research Lab in Dayton, OH, the Center plans to make awards in support of promising projects by October 2010. These projects will have both novel nanotechnology solutions and proven commercial potential. Potential projects to be supported by the Center will be 12 months in duration with an average award of \$150,000.

### GECKOS PROVIDE PITTSBURGH TECH COMPANY WITH MARKETABLE IDEA BEYOND CAR INSURANCE

by Kevin Lane

An early stage spinout from Carnegie Mellon University has taken a good, long close-up look at the humble gecko, of which there are, more than 800 species worldwide, and discovered that it has something to offer us beyond competitive car insurance rates.

In late summer of 2009, the Pennsylvania NanoMaterials Commercialization Center awarded \$200,000 in Air Force Research Laboratories (AFRL) funding to nanoGripteck, LLC for the commercialization of a fibrous adhesive material, inspired by the foot hairs of the popular reptile made famous in television commercials.

Dr. Metin Sitti, a professor and director of Carnegie Mellon's nanorobotics laboratory, founded nanoGripteck after 10 years of research on adhesives. As a result of observing the natural climbing ability of the gecko, he plans to mass produce repeatable polymer-based micro fiber adhesives for a wide range of product applications.

The material mimics the millions of nano- and micro-fibers on the toes of geckos, insects and other animals that provide them with their ability to grip strongly and repeatedly to smooth and rough vertical surfaces, even in wet and dirty outdoors conditions. The scientific principle that allows geckos to stick to surfaces are known as van der Waals forces, and in theory a boot made of synthetic gecko fibers could adhere just as easily to the surface of a living room wall. Sitti's technology uses polymers and microscopic manufacturing techniques to recreate the gecko's fibers. Not technically glue, Sitti calls this sticky phenomenon the "one-sided Velcro" effect.

Funding from the Center has assisted the company in the design, manufacturing and testing of first-generation materials for new commercial sportswear applications. Other targeted applications for this technology will include those in the robotics, medical and personal protective equipment industries. The U.S. Department of Defense, for instance, is working with nanoGripteck to develop a sealant for the army's protective face masks.

The company plans to design, develop prototypes, customize and fabricate its products cost effectively and in high volumes in their own local facility. With about five employees, the company's current operations are two blocks from CMU's campus, but they will need an additional 5,000 square feet, once full-scale manufacturing begins in about two years.

Beyond the funding award, Sitti said that the Center also provided a number of other valuable services that were instrumental in building the company.

"The Center helped nanoGripteck to formalize a closer collaboration with our current corporate partner, Bayer MaterialScience, which will supply us with the polymer used to manufacture our adhesive fibers," said Sitti. "In addition, the Center assisted by helping us to define specific product goals for our initial customer, a major sportswear manufacturer, and by providing valuable feedback for improving relationships with them."

"Beyond that," said Sitti, "the Center also introduced us to a very robust network of other nanomaterials companies in the region, and through these forged relationships we ultimately were able to find the space where we currently operate."

The Center's AFRL grant also cemented a closer relationship with the Air Force labs, which put nanoGripteck on the short list for a phase two grant or other additional funding possibilities in the future.

The Center's total package of assistance also has enabled nanoGripteck to hire and retain two of their current employees.

"We view this project as a key example of the vision for the Center," said its Executive Director Dr. Alan Brown. "This project perfectly illustrates that through key partnerships between university researchers, entrepreneurs and large companies, we can accelerate the transition of new nano-based products to market and grow start-up companies more quickly."

As a result of the expertise and deep networks that have been established by the Pennsylvania NanoMaterials Commercialization Center, Sitti plans to design, manufacture and market nanoGripteck products from the Pittsburgh region. He wants to stick close to where the critical mass is, not unlike a gecko that will stick to a pane of window glass on a sunny day.

For more information visit: [www.nanogripteck.com](http://www.nanogripteck.com) [www.pananocenter.org](http://www.pananocenter.org)

### DIRECTOR'S COMMENTS:

Welcome to this summer edition of NanoMaterials Quarterly. This is turning out to be a busy summer here at the Center.

Our late winter/spring round of proposal submissions resulted in 6 new projects just started by the Center. In addition, we are gearing up for our annual Showcase Day at the Air Force Research Labs in Dayton, OH on August 11th.

With all this, we have been deeply involved in how the Center can provide more services for our growing number of members. These members run the spectrum from researchers at universities, to new product development managers in large companies, to entrepreneurs in start-ups, to established small company CEO's (a very diverse group).

To better understand the needs of these "customers", we did some surveying. Not surprisingly, the needs reflected the diversity of the individuals and groups. However, a common theme did emerge. This was the desire to have a more "engaged" network which could add value for each member either individually or in partnerships. In response to this need, the Center is introducing a "Find a Partner Service" on our Web Site. This service offers an opportunity for researchers to showcase unique nanotechnology solutions matched to innovative new product concepts leveraging that technology. Alternatively, the service offers a way for companies to submit new product ideas requiring a technology solution. For more information click on the link at the top left section of this newsletter. Try it out and let us know what you think.

Have a great summer and stay cool!

Alan G. Brown  
Executive Director



## NANO CENTER NEWS

### CENTER ANNOUNCES NEW PROJECTS IN ENERGY

The winners of the 7<sup>th</sup> Proposal Round have been announced. These projects were selected by the Center's independent Technical Advisory Committee (TAC). From the 18 proposals submitted to the Center in March, awards were made for 3 commercialization projects (\$150,000 each) and 3 pre-commercialization projects (\$30,000 each). All projects are focused on developing and commercializing advanced materials research for energy applications. Funding support for these awards was provided by the Department of Community & Economic Development for the Commonwealth of Pennsylvania and the Air Force Research Labs in Dayton, OH. For more details please visit the Center's website. (+)

### INTEL CAPITAL: INSIDE THE MIND OF A CORPORATE INVESTOR

Many corporations have venture capital groups, which at times can behave similarly or different from venture capital firms. Intel Capital has been one of the largest corporate investors for well over a decade. Join us as western Pennsylvania native and CMU alumnus Tom Marchok explains the objectives, scope, and activity of Intel's venture capital group, and shares his thoughts on what entrepreneurs should look for when evaluating a potential corporate investor. *This is a must-attend event for any entrepreneur!* (+)