

GECKOS PROVIDE PITTSBURGH TECH COMPANY WITH MARKETABLE IDEA BEYOND CAR INSURANCE

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 nanoGriptech, 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 nanoGriptech 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 nanoGriptech 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 nanoGriptech 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 nanoGriptech 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 nanoGriptech 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 nanoGriptech 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.nanogriptech.com www.pananocenter.org

