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Business Success Story

Energy Innovation Workshops

The Center's Energy Report

Industry-University Energy Workshops

The PA Nano Center is hosting two industry-university workshops this fall which showcase new advanced materials research and technologies emerging from our partner universities. We invite our industry partners to sign up for these workshops and engage with both faculty and small company researchers to brainstorm new ideas and applications for advanced materials technologies for energy solutions.

Penn State University (State College) October 20 -21

University of Pittsburgh November 3 - 4

Outcomes from these workshops will be new ideas and new partnerships which may be eligible for commercialization through funding support from the Pennsylvania NanoMaterials Commercialization Center.

To register [click here](#)

Energy Report

In recognition of the major role that advanced materials research plays in the energy sector, the Center has just completed a new study entitled, "Pennsylvania Opportunities in Advanced Materials for Energy." To obtain a complimentary copy, log on to our website as a member

www.pananocenter.org.

Have an Idea?

The Center gives the opportunity for individuals to submit a "Idea Submission" to determine if their technology and commercialization plans are suitable ideas for support by the Center.. If you have an idea you would like to submit, please visit our website at www.pananocenter.org

Need Help Finding a Research or Industry Partner?

The Center offers a free service in matching innovative research with new product ideas. If you are looking to partner up with someone and need a little help then contact the Center at info@pananocenter.org

Y-Carbon? Because It Has So Many Applications!

By: Kevin Lane

The Pennsylvania NanoMaterials Commercialization Center recently awarded King of Prussia-based Y-Carbon a grant in the amount of \$ 243,835 in Ben Franklin Technology Development Authority funding, with the company providing matching funds of \$78,000. This sum and other vital resources were used to achieve critical milestones in commercializing Y-Carbon's technology.

The company will convert carbides (such as titanium carbide) into a highly pure form of carbon, essentially by extracting the metal atom and leaving behind carbon that has homogenous pores, the size of which may be precisely controlled by the extraction process. This process produces materials with extraordinarily high surface areas that have several applications, such as supercapacitors used for electrical storage and water desalination. The nanoporous carbon also can be used for safer fuel storage, toxic gas handling, monitoring for explosives and toxins, fuel cells and even blood purification.

Products made with Y-Carbon's technology will allow for higher density energy storage in electric vehicles, the removal of liver-failure toxins from the human body, and additional applications that will provide clean energy and improved health care worldwide.

Y-Carbon's funding was used to develop a customer prototype for use by a major defense contractor, and it also was used as leverage in securing two SBIR phase 1 grants.

"Certainly the funding that Y-Carbon received from the Nano Center was critical in allowing us to develop a prototype for a major defense contractor," said Dr. Ken Malone, Y-Carbon's CEO, "and we probably would not have received our SBIR awards either without the Center's assistance. However a very important direction that the Center provided was an improved business structure, a certain rigor and discipline. This enabled us to focus more on the commercialization aspects of our technology, where previously we were more focused on R&D." Yet Y-Carbon's focus on research and development earned them *R&D Magazine's* prestigious R&D 100 Award, which is presented annually to "revolutionary technologies newly introduced to the market." Previous winning technologies have included the automated teller machine (1973), the fax machine (1975), the Kodak Photo CD (1991) and HDTV (1998).

Y-Carbon was founded by Dr. Yury Gogotsi, who is a tenured professor and director of Drexel University's A.J. Drexel Nanotechnology Institute. With more than 20 years in the fields of materials science and nanotechnology, Dr. Gogotsi holds more than 30 patents. He has authored numerous published works, including two books and more than 180 papers in peer-reviewed journals, including three papers in *Nature* and two in *Science*. Dr. Gogotsi also currently serves as Y-Carbon's chief science officer.

Dr. Ranjan Dash is a co-founder and chief technology officer at Y-Carbon. He has more than six years of work experience in diverse fields, including ceramic manufacturing, software development and research and development in materials science. Ranjan is alumnus of the Drexel Nanotechnology Institute, where he did his research on the core technology that Y-Carbon is commercializing.

Dr. Malone is a serial entrepreneur and has a breadth of experience in the fine chemical industry, including leadership positions in manufacturing, research, finance, marketing and business management.

Visit: www.y-carbon.us

Director's Comments:

Welcome to this fall 2009 edition of our Quarterly Newsletter. The choice of Pittsburgh to host the G-20 Summit is in recognition of the city's transition from an economy dominated by traditional manufacturing to one which has become more diversified across both manufacturing and services. Underlying and enabling this transition is the role of high technology; information technology, robotics, health sciences and yes, nanotechnology.

Recently, we are seeing how Pittsburgh is addressing the challenge of developing new energy solutions; from new sources, efficiencies, and "green" approaches. In recognition of the significance of the energy sector, the Center has begun two initiatives which encourage and support innovation in applying advanced materials to energy. The first is a new study we have just completed, entitled, "Pennsylvania Opportunities in Advanced Materials for Energy." The second involves two industry-university workshops we are hosting this fall which showcase new advanced materials research and technologies emerging from our partner universities. Click on the links in this newsletter to obtain more information.

Alan G. Brown
Executive Director



Nano Center News

nanoGriptech, LLC. makes the Pittsburgh Tribune with their new gecko "one-sided velcro" technology. Metin Sitti, the founder of nanoGriptech, LLC, proposed to the Center in Round 5 and is already getting ready to manufacture his technology in one to two years. For more on this article please [click here](#).

Strategic Polymer Sciences achieves major breakthrough in its "[Wrinkle-Free Dielectric Capacitor Films](#)". SPS successfully mass-produced its ultra-high energy-density polymer film, of 2.5 microns thickness and with excellent uniformity, breakdown voltage, and energy density.

Proposal Round 6 closed July 31, 2009. The Center received its highest ever of proposals during this round. The Center received a total of 18 proposals from across Pennsylvania. The winners will be announced by the end of September.

On July 23, 2009, the Center had its [3rd Annual NanoMaterials Showcase Day](#) at the Air Force Research Labs (AFRL) at Wright-Patterson Air Force Base in Dayton, Ohio. The Center worked closely with the AFRL to arrange the one day event where many of the Center's portfolio companies presented their technology to Air Force staff. These portfolio companies were; Y-Carbon Inc., Strategic Polymer Sciences Inc., Plextronics Inc., ICx Agentase, nanoGriptech LLC, Bayer MaterialScience LLC, and Arkema Inc.