

# News Release

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## *For Immediate Release*

### **PENNSYLVANIA NANOMATERIALS COMMERCIALIZATION CENTER AWARDS \$450,000 TO FIVE COMPANIES STATEWIDE IN SEVENTH ROUND OF FUNDING**

Pittsburgh, July 27, 2010...The Pennsylvania NanoMaterials Commercialization Center recently announced that it has provided \$450,000 in funding to five companies located throughout the state of Pennsylvania in its seventh round of awards. This round of funding was focused on commercializing the application of nanomaterials for new energy solutions.

Companies whose awards were underwritten by the Pennsylvania Department of Community and Economic Development include the following:

#### **Crystalplex Corporation**

Pittsburgh-based Crystalplex was awarded \$130,000 with a company match of \$65,000 for developing its proprietary quantum dot light-emitting diode prototypes. The Crystalplex technology enables the manufacture of more cost-effective and efficient solid state light sources at performance levels beyond the reach of current rare-earth phosphor-based white LEDs. It also enables the production of liquid crystal display (LCD) backlight units with markedly improved performance. The prototypes will lead to the joint development of commercial subassemblies for solid state luminaires and LCD backlight units with commercial partners.

#### **Illuminex Corporation**

The Center awarded Lancaster, PA-based Illuminex \$130,000 with a company match of another \$130,000 for the commercialization of a novel copper-silicon nano-structured anode for the next generation of lithium-ion batteries (LIBs). Silicon is an attractive anode material because it has a

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low discharge potential and the highest known theoretical charge capacity. However bulk silicon expands up to 400 percent as it reacts with lithium, and disintegrates from the stress, preventing the successful implementation of silicon in LIB's so far. The Illuminex technology provides a high quantity of silicon in a thin film configuration that expands homogeneously minimizing stress, with a ductile behavior accommodating any existing stress. This innovation will lead to higher energy density LIB's used extensively in portable electronics and will significantly benefit the development of electric vehicles.

### **ICx Technologies**

With 30 people at its Pittsburgh operations, ICX was awarded \$30,000 with a company match of \$31,648 for developing a production process of molecules that are identical to diesel fuel. This novel biofuel is designed to be a drop-in replacement for petroleum-based fuels. It can represent an improvement over current biofuels, such as ethanol and biodiesel for three primary reasons. First, it has the potential to be compatible with existing infrastructure, such as engines and fuel delivery equipment. Second, it can be compatible with multiple sources of energy generation, such as direct sunlight, cellulose or even manure. Finally, it can be independent of food-related energy sources, and as a result, neither competes with food production nor impacts food prices.

### **The Pennsylvania State University**

The Center's award of \$30,000 with a match of \$30,000 will support Dr. Panghai Wand, a professor at Penn State University as he develops and commercializes an advanced graphene-based nanocomposite for electrochemical energy storage applications such as lithium ion batteries and supercapacitors. The advanced material will have high energy density and/or high power in the energy storage devices, and it can significantly improve electrode kinetic and cycling stability for energy storage applications.

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Funding that was underwritten by the Air Force Research Laboratories was awarded to:

### **Industrial Learning Systems**

The Center awarded Pittsburgh-based Industrial Learning Systems \$130,000 with a company match of \$130,000 to assist in the development of a novel silicon wafering technology for the continuous production of nano structured solar cells. The project is based on the patented technology filed through Carnegie Mellon University (CMU) and licensed to Industrial Learning Systems. In this project, the light capturing ability of the wafer is improved by chemical texturization and nano-architectures to increase the surface area and reduce the reflectivity. This provides enhanced light absorption and solar conversion efficiency. The proposed wafering and texturization process has the potential to reduce the wafer's present cost by a factor of four or more.

The mission of the Pennsylvania NanoMaterials Commercialization Center is to promote and support the commercialization of nanomaterials research for new and enhanced products critical to the U.S. economy and manufacturing base. The Center builds upon Pennsylvania's excellence in advanced materials research, development and manufacturing and acts as a new model for a public-private partnership among government, universities, entrepreneurs, small and large companies to accelerate the transition from nanomaterials invention and innovation to the launch of new products and processes. The Center holds two rounds of requests for proposals each year. The selection process is competitive, with proposals being reviewed and ranked by an independent technical advisory committee.

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