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OCAST names five nanotechnology application award winners

Five nanotechnology application award winners have been approved for funding under the Oklahoma Center for the Advancement of Science and Technology (OCAST) Nanotechnology Applications Project (ONAP). Winners will be awarded more than \$1.4 million for the next three years.

The governing board for OCAST approved the awards at a regular meeting at the Forensic Science Institute on the campus of the University of Central Oklahoma, Edmond.

ONAP was created by the Oklahoma legislature to initiate a statewide project to accomplish the following:

1. Provide funding and technical support for the application of nanotechnology and assist later stage development of nanotechnology
2. Provide education about nanotechnology to the state's economic development network, researchers, manufacturers and businesses
3. Enhance services to Oklahoma manufacturers or Oklahoma companies that are in the process of applying nanotechnology

Successful applicants are chosen based on their likelihood for commercial success and the probability to enhance employment opportunities. All applications undergo an outside peer review to rank all applicants.

There were 13 applicants in the current competition. Winning nanotechnology awards include:

Norman – SouthWest NanoTechnologies Inc. (SWeNT)

Advanced Cathode Materials for Next Generation Batteries Used in All Electric Vehicles

Electrode performance is the limiting factor in using lithium ion (Li-ion) in high discharge applications such as electric automobiles. Carbon nanotubes have been shown to increase electrical conductivity and deliverable capacity while enhancing electrode durability. SWeNT researchers anticipate a commercial product that will be critical to mass production of lithium ion vehicles batteries. Ricardo Prada Silvy is principal investigator. Award: \$500,000 for three years

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OCAST Funds Nanotechnology Projects – OCAST ADD 1

Stillwater – Frontier Electronic Systems

Development and Commercialization of a Lithium Battery System

Frontier Electronics System, in concert with research from the University of Tulsa laboratories, plans to develop high performance lithium battery systems for commercial/military applications which would be manufactured in Oklahoma by Frontier Electronics Systems Corporation. In this project, self-assembled nanostructures will be applied to construction of battery electrodes to improve energy density, safety and electrical performance. Up to \$50 million in sales each after 15 years is estimated. Lloyd Salsman is principal investigator. Award: \$500,000 for three years

Oklahoma City – Charlesson LLC

Nano-emulsion-based Formulation of Anti-glaucoma Drug for Improved Topical Administration

The project goal is to develop a stable, clinically acceptable ophthalmic nano-emulsion. The benefit would be a lower drug dose, an improved ocular distribution profile and a possible improvement of the dosage regimen with a positive impact on patients suffering from glaucoma. When successful, the research project will place Charlesson in a position to hire additional staff for formulation services sales and marketing. Ronald Wassel is principal investigator. Award: \$242,295 for two years

Stillwater – Oklahoma State University

Hybrid Plasmon Damping Nanosensor

The United States, Europe, Canada and Japan have regulated the sulfur level in diesel and gasoline from 500 to 15 parts per million. Such stringent regulation imposes obligations to monitor sulfur at all points from manufacturer through distribution. This research project should produce a hand-held sensor device capable of detecting sulfur impurities in gasoline and diesel down to the parts per billion levels. The acting sensing element of the device is a nanoengineered material which exploits a novel mechanism that is patent protected. Commercialization will involve a joint effort with AMETEK Oil and Gas to integrate the sensor in current upstream fuel technology. Gross sales are projected at \$6 million. A. Kaan Kalkan is principal investigator. Award: \$89,480 for two years

Norman – Bijhem Scientific Inc.

Genetically Modifiable Biomimetic Nanocatalyst for Environmental Applications

This project proposes to research and develop technology for the manufacture of a self-regenerating catalyst with an increased efficacy over commercial catalysts for the absorption and destruction of organic contaminants in the environment. Biochemistry and genetic engineering will be used to grow bacteria expressing nanostructures. Bijo Mathew and Bijhem Scientific Inc. will work on the project. Award: \$90,000 for two years

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