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April 22, 2008
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OCAST announces state's second round of nanotechnology application award winners

Eight Oklahoma small businesses that will apply nanotechnology to their business models are successful competitors for the state's second round of nanotechnology application awards totaling \$1.5 million over the next three years.

The awards were made this week by the OCAST governing board and came one year after the first program awards, valued at \$1.25 million, were made to five small businesses in the state.

Michael Carolina, executive director of OCAST, said, "We are well on our way in establishing Oklahoma as a leader in nanotechnology. This emerging field is a fundamental technology and the third great mega trend that will have a profound impact on all aspects of life. We are known for funding R&D; however, under this OCAST program, lawmakers chose to fund actual application of nanotechnology."

The Oklahoma Nanotechnology Applications Project (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. Sustain the Oklahoma Nanotechnology Initiative (ONI) begun in 2005. OCAST contracted with The State Chamber of Oklahoma to operate ONI which provides a focus on the promotion and support of business, academic, manufacturing, employment and investment initiatives related to nanotechnology and coordinates activities on a regional basis for the benefit of Oklahoma

In keeping with OCAST's traditional method of competitive peer review, this week's awards were chosen based on the greatest likelihood for commercial success.

Winning nanotechnology awards include:

Stillwater – Oklahoma State University

Professor Allen Apblett of OSU is studying the use of nanometric inks for detection of explosives. Mitigating the threat posed by explosives requires simple, lightweight inexpensive test kits for indicating the presence of explosives in the field. Three different types of commercial products for airport screening applications will be developed based on the discovery of nanoparticles that undergo selective reactions with explosives leading to dramatic color changes. Award: \$83,338 for two years.

Stillwater – Oklahoma State University

Professor A. Kaan Kalkan of OSU proposes the development of a surface-enhanced Raman scattering substrate, an engineered nanomaterial capable of detecting trace amounts of explosives on skin, clothing and luggage down to the single molecule detection limit. Sensor technology firm ICx Nomadics of Stillwater will provide matching support. Award: \$46,914 for two years.

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ONAP Second Round Winners – OCAST ADD 1

Ardmore - IMTEC Dental Implants

Mauricio Sanchez of IMTEC Dental Implants plans to modify the current Endure Dental Implant system already manufactured in Oklahoma. The product is attached to the bone and provides a device for replacing teeth by attaching hydroxyapatite nanoparticles to the implant surface. The benefit is a reduced healing time and a reduced rate of infection. Award: \$299,250 for three years.

Stillwater – Oklahoma State University

Jeanmarie Verchot-Lubicz is principal investigator for a project that will produce a new type of biocompatible nanoparticle that exhibits fluorescence and has the ability to provide targeted delivery of biologically active molecules. Applications included biological research, medical treatment and diagnostics, drug discovery, agriculture diagnostics and pesticide recovery, delivery of biosensors in plants for environmental protection, animal husbandry and other industries. The match source is the Oklahoma Agriculture Experiment Station and the commercial partner is ICx Nomadics. Award: \$81,166 for two years.

Norman – Nanolight Inc.

Shelly Elizondo is principal investigator of a project designed to provide field-portable and hand-held devices that help monitor pollution and environmental sensing. This technology requires both the laser and the detector to operate at room temperature. To mitigate detector shortcomings, the proposal calls for a photoconductive mid-IR detector using a virus-based assembly of nanowires. Nanolight Inc. is a spin-off company from the University of Oklahoma. Award: \$90,000 for two years.

Lawton & Edmond – XetaComp Nanotechnology LLC

Charles Seene is principal investigator of a project to exploit the developed nanofabrication technology for the production of nanoparticle titanium and zinc oxides. Both are highly efficient broad-spectrum UVA/UVB attenuators. XetaComp is introducing a range of dermal care products to the personal care industry under the trademark sunVex. NanoBioMagnetics, a related company headquartered in Edmond, is providing match funding. Award: \$344,800 for two years.

Norman – Ekips Technologies Inc.

Principal investigator Pratyuma Kamat will develop improved four-level mid-infrared lasers with low power consumption and room temperature operation by controlling the laser structure parameters at the nanometer scale. The benefit will be smaller, simpler and more cost effective laser spectrometer systems that could help diagnose lung cancer and sepsis. Collaborations for the project include the Oklahoma Medical Research Foundation and the Oklahoma University Health Sciences Center. Award: \$350,252 for three years.

Oklahoma City – Charlesson LLC

Ronald Wassel of Charlesson LLC will seek to establish a chemical formulation that can be used to package small molecule drugs in preparation for ophthalmic and neurological treatments. The research has potential benefits for treating age-related macular degeneration which is the leading cause of blindness in adults over age 50. Other benefits include reducing the economic burden of repeated dosings and patient discomfort associated with applications of drugs. Award: \$204,280 for two years.

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