

# Second-Round MIIE Awards

## Project summaries

### **Michigan State University- ANS Commercialization Project (\$115,000)**

Researchers identified a black pepper compound that may help reduce grain contamination by fungi. The grant will help the researchers develop a bulk purification of the product, test the processes and products, and then develop a strategy to initiate commercialization.

### **University of Michigan - New classes of silicone based materials (\$31,660)**

Researchers have discovered simple catalyst that could lead to entirely new classes of silicone compounds specifically tailored for physical properties such as flexibility, hardness, transparency, coefficient of thermal expansion and others. In addition, the catalyst can be used to re-dissolve existing silicone resins, making them recyclable for the first time. The grant will support investigation of applications.

### **University of Michigan- Commercialization of Ultra-Low Power Microcontrollers for Wireless Sensing (Phoenix Processor) (\$75,264)**

Researchers are seeking to bring to business ultra-low power microcontrollers for wireless sensing. The researchers have developed a prototype that operates at low power, reducing energy use. The grant will fund additional prototypes for delivery to key customers for real-world testing.

### **University of Michigan - CANVEN Intracellular Potassium Monitoring Device Development (\$32,646)**

Researchers are building a small-scale prototype of an intracellular potassium-monitoring device to measure potassium levels within small volumes of whole blood samples. The prototype will lead to the development of a point of care testing device for clinical use to measure potassium deficiencies, which have been linked to high blood pressure, insulin resistance, cardiovascular complications and sudden death.

### **University of Michigan, Western Michigan University - Nanoparticle Electrostatic Printing (\$37,092)**

University of Michigan researchers are working with the Western Michigan University Center for Ink and Printability to manipulate and position nanoparticles, originally developed for in-space electric propulsion of microsatellites, so they can be used in extremely high quality printing, semiconductor processing and even for biological/cellular interaction.

### **Wayne State University- Novel Cell Lines and Methods for the Manufacture of Biotherapeutics (\$96,800)**

Using the Translation Regulated (TR) expression system to show straightforward readouts of ribosomal activity or protein translation in normal, stressed or dying cells, researchers have isolated a unique cell population. These cells exhibit elevated ribosomal activity during cellular stress and will be useful in drug discovery.

### **Wayne State University - Wireless Smart Sensor System: Error-Proofing (\$59,238)**

Researchers have developed a unique wireless smart sensor designed for close proximity sensing. The technology could be used for quality control by supervisors who oversee human-oriented assembly, packaging, sorting, and counting tasks; and could also be used in special education vocational training, and employment for workers with cognitive disabilities. The award funds production prototypes for testing.

**Wayne State University - Validation of a Novel One-Step Heterogeneous Catalyst for Biodiesel Production at Low Temperature Using Multiple Low-Cost Feedstocks (\$129,960)**

Researchers are working to make it easier and cheaper to create biodiesel out of multiple, low-cost feedstocks such as waste cooking oil, crude oils and rendered animal fat that can be directly converted to biodiesel without costly and time-consuming pretreatment. The award will support production capability validation.

**Wayne State University - Channelrhodopsin for Vision Restoration: Commercialization Planning (\$29,480)**

Wayne State University and the Pennsylvania College of Optometry have developed a novel approach for treating blindness caused by certain retinal degenerative disorders using a gene therapy to restore light responses to otherwise degenerated retina. Animal studies have been conducted, which demonstrate the restoration of light responses in retina and transmission of the light signal to the brain in previously blind animals. MIIE grant money is being used to plan the commercialization of the treatment.