$5 million investment to expand diamond-growing lab

A laboratory housed at Michigan State University that literally grows diamonds, gems that are not used for jewelry but rather for industrial purposes, is expanding thanks to a $5 million investment by MSU and corporate partner Fraunhofer USA.

The facility – to be known as the MSU-Fraunhofer Center for Coatings and Diamond Technologies – expands the current MSU-Fraunhofer laboratories located in the MSU Engineering Research Complex on the campus’s south side.

The facility will add about 15,000 square feet of space and new diamond synthesis equipment to accommodate an increase in personnel and research projects in the center.

Currently about 30 scientists, technicians and others work at the lab, including MSU faculty and students. That number is expected to nearly double once the expansion is complete.

“MSU and our long-term research partner, Fraunhofer USA, will triple the existing laboratory space and increase personnel and research resources to integrate and advance this mutually beneficial collaboration,” said Leo Kempel, dean of the MSU College of Engineering.


The coatings are used in areas such as manufacturing and automobiles to help reduce friction in moving parts.

“These coatings are typically thinner than 10 micrometers,” said Timothy Grotjohn, MSU professor of electrical and computer engineering who also serves as research and development director of the center. “They enhance the properties of the surfaces to which they adhere, lowering friction and causing less wear.”

As for diamonds, the facility literally “grows” diamonds using what’s known as a vapor phase technique. “We basically grow the diamond layer by layer,” he said.
“Diamond technologies enable a wide range of technical applications by combining a set of extreme electrical, mechanical, thermal, electrochemical and optical properties,” said Thomas Schuelke, center executive director and professor of electrical and computer engineering.

With a combination of basic and applied research, the new center is expected to generate $7 million in research revenues annually.

The center also has close ties with the Fraunhofer Institute for Materials and Beam Technology, which is based in Dresden, Germany. The institute conducts applied research and development in the field of laser and surface technologies.

The MSU-Fraunhofer collaboration began 12 years ago when the partners first established a joint laboratory on campus under the leadership of Jes Asmussen, a University Distinguished Professor of Electrical and Computer Engineering. Today, the MSU-FRAUNHOFER Center is considered a world leader of wide bandgap diamond power electronics and electrochemical sensor research, Schuelke added.

Story courtesy of MSUToday. Photos by G.L. Kohuth, MSU.
Related Website: MSU-Fraunhofer Center for Coatings and Diamond Technologies
Fraunhofer celebrates 10 years at MSU (2013)
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