News Release

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November 14, 2006

NIU-ROCK bringing new titanium technologies to Rockford

Rockford, Ill. — Northern Illinois University's Rapid Optimization of Commercial Knowledge (NIU-ROCK) program is working to make the Rockford region a leader in the processing and machining of titanium.

A new center being created by NIU-ROCK will use a series of new technologies for processing and shaping titanium that cut the cost of creating many parts by 80 percent. The $1 million project is funded through a Department of Defense earmark secured by Rep. Don Manzullo and Sen. Dick Durbin.

"This is a wonderful example of what ROCK was created to do," said Promod Vohra, dean of the NIU College of Engineering and Engineering Technology. "We are helping to attract new, cutting-edge industry to Rockford and using the expertise of NIU faculty to help perfect this process to a point where it is commercially viable."

The titanium project also fulfills the goal of NIU-ROCK to make Rockford an important part of the Department of Defense supply chain.

Increasingly, titanium is being incorporated into military machinery because of its light weight, exceptional strength and its ability to withstand temperature extremes and corrosion. The metal also is medically inert and is increasingly used in joint replacements and other procedures. Growing demand for the metal has pushed the price of processed titanium ready for machining to around $27 a pound.

The process that will be piloted by NIU-ROCK in Rockford not only lowers the price of titanium to about $2 a pound by simplifying the process for making titanium powder, then compacting it into a shape suitable for final machining.

The project will bring to Rockford the efforts, expertise and technologies of several companies, most of them from Illinois:

- International Titanium Powder – Based in Lockport, Ill., ITP has perfected a process that creates high-quality titanium powder at a fraction of the cost of traditional methods.
- LMC – Based in DeKalb, Ill., LMC has designed and built a machine capable of economically forming titanium powder (like that created through the ITP process) into complex parts that require little additional machining and can be used in almost any application where titanium is appropriate, at a fraction of the cost of parts created through traditional methods.
- Materials Modification Inc (MMI) – Based in Virginia, MMI uses a process involving tremendous pressure and plasma heat, which can further consolidate the material to near 100 percent density, healing minute flaws in the titanium, allowing it to meet the highest quality standards.
- Super Materials Inc. – a newly formed, Rockford-based company will take the lead in commercializing the MMI process in Rockford.

Partners in this initiative initially will include various Rockford area engineers, fabricators and machine shops. Companies such as Ingenium, Hamilton-Sundstrand, Woodward Governor and Ingersoll Machine Tools are expected to provide demonstration parts and designs during the research and development phase.
Richard Johnson, who oversees NIU-ROCK for the college believes the process has potential to create jobs in Rockford

“The companies and processes involved in this project are relatively unique in the country. Bringing them all here has the potential to make Rockford a center of excellence when it comes to working with titanium,” says Johnson. “If we can demonstrate the commercial viability of this technology, it could mean a lot of work for Rockford area companies that would manufacture and build these machines and other companies that would make finished parts from LMC processed ITP powder.”

Johnson said that ROCK will spend the next year laying the groundwork to get the project up and running. Included in those efforts will be moving a 300,000-pound machine owned by LMC from Zion, Ill. to Rockford. In addition to the $1 million in funding for the titanium project, NIU-ROCK also received an additional $3 million in funding to continue its efforts to build a small business supply chain in the Rockford area for the Defense Department and to introduce micro-machining technologies in Rockford.

With part of the $3 million in funding, NIU-ROCK will help local companies create micro-precision fabricating machines; develop supporting technologies to make those tools commercially viable; evaluate and demonstrate the machines and new manufacturing processes for military vehicle component fabrication and other areas of military interest. NIU-ROCK will take the lead on that project at EIGER*lab*, some of which was previously run by Alion Science and Technology.