

Press Release for Wednesday, June 30, 2010

UNF School of Engineering Receives Over \$9M for Fuel Cell Research

Joanna Norris, Assistant Director
Department of Media Relations and Events
(904) 620-2102

The University of North Florida's School of Engineering received a combined \$9.4 million in contracts from the U.S. Army CERDEC (Communications-Electronics Research, Development and Engineering Center) and the U.S. Department of Energy (DOE) for fuel cell research.

The value of the combined fuel cell contracts is the largest amount in total contract value that the University has ever received for a technology-related research activity. The funds from the contracts will be used by UNF researchers to continue the development and commercialization of direct methanol fuel cell power sources for two laptops, one to be used by American soldiers and the other by the average consumer.

The latest contract with the Army CERDEC, when awarded later this summer, will provide UNF with \$3.2 million for the third year of a four-year project. UNF and University of Florida researchers along with UNF engineering students are working to replace the battery in military laptops with a methanol fuel cell to make our soldiers more efficient and safer in battle. This research could result in power supplies that are lighter, more reliable, and less costly to make and better for the environment.

Portable energy sources for the dismounted soldier and for unmanned reconnaissance are of critical importance. The project with UNF will lead to a substantial improvement in such power sources, making them smaller, lighter, and more cost effective than today's technology solutions.

The University leveraged the seed money for the project into additional funding for the research from the DOE. The contracts with the DOE are for two projects and will provide UNF with \$2.5 million per project, which is the largest single federal contract UNF has ever received to date. One of the projects focuses on the development of a commercialized version of the military laptop power supply and is funded through the American Recovery and Reinvestment Act. The second project, funded through the DOE Fuel Cell Technologies Program, works to improve the membrane electrode assembly, the key component of the power system, and make it even better. Subcontractors on these projects are UF, Northeastern University and Johnson Matthey, a global catalyst provider.

Dr. Jim Fletcher, a UNF mechanical engineering professor and the principle investigator for all of the contracts, emphasized the potential for income to UNF through licensing of the UNF intellectual property and the other advantages that accrue from sponsored research programs. "The Army and DOE funding allow the School of Engineering to attract research faculty, teaching faculty and students who might not otherwise come to UNF," he said. "Some graduates and faculty may be involved in UNF spin-off companies based on these underlying technologies that can bring high-tech jobs and patents to the First Coast region."

Direct methanol fuel cells (DMFC) are emerging as the technology of choice to enable continuous operation of critical national security and commercial systems. Traditional batteries use heavy metals and need to be recharged, while DMFC devices offer higher energy density, reduced weight and extended run-time compared to conventional battery alternatives. A laptop powered by direct methanol fuel cells can operate 10 times longer than one using traditional batteries. Soldiers will be able to insert a cartridge containing liquid methanol and refuel their laptop computers as opposed to taking the time to recharge their batteries.

When the military laptop project started in August of 2009, UNF was partnering with PolyFuel Inc., a former world leader in portable fuel cell membrane technology. UNF and the Army partnered to purchase significant portions of PolyFuel for its relevant intellectual property and equipment so the research can continue to advance. As a result, UNF has a presence in the Silicon Valley in California and Vancouver, Canada, where PolyFuel had operational facilities.

The projects with the DOE will allow UNF, as owners of the intellectual property, to license the fuel cell membranes and technology to commercial entities, which will then produce it and sell it. The result of the research will be a membrane that will be more efficient and durable at a lower cost, with the goal of manufacturing a power-producing device that will allow products, such as laptops, to be truly wireless, never having to plug it in to an outlet.

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