

NANOTECHNOLOGY RESEARCH RECEIVES A BIG BOOST IN FEDERAL FUNDING

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Bigger isn't always better. In fact, Associate Professor Craig Friedrich (ME-EM) and fellow researchers may soon be awarded \$1 million from the federal government to study just how small they can make electronic devices.

As part of a \$417.5 billion defense spending package that recently passed both houses of Congress, Michigan Tech's Center for [Nanomaterials Research](#) could receive the \$1 million grant for research in nanotechnology for military equipment. The bill awaits the president's signature for its final approval.

"Nanotechnology allows electronic systems to be smaller and use less power," said Friedrich.

Friedrich's research in nanotechnology could also have implications beyond the military. "This is clearly critically needed research in the defense arena, but so frequently research like this often has applications in a variety of other areas," said Dale Tahtinen, vice president for governmental relations. "His work is really cutting edge."

Friedrich and his associates (Paul Bergstrom, assistant professor of electrical and computer engineering; Ashok Goel, associate professor of electrical and computer engineering; Miguel Levy, associate professor of physics; Owen Mills, senior engineer for materials and science

engineering; and Peter Moran, assistant professor of materials science and engineering) are focusing on creating nanoelectronics and communication nano-devices, connecting nano-devices with micro-devices and integrating protein sensors with nanoelectronics to develop complete nanosensing systems.

"Like so many research projects at Michigan Tech, this will have enormously positive results," said Tahtinen. "And Michigan Tech's reputation as a superb research university, doing world-class work, will be additionally enhanced."

This grant will be the latest of three grants the center has received from the Defense Advanced Research Projects Agency (DARPA) and the Department of Defense. In August 2003, MTU received \$1.4 million, and in June 2004 another \$2.8 million was given to the university for research in nanotechnology.

"The type of nanotechnology we are currently doing is taking existing things and making them smaller," said Friedrich. "With this third appropriation, we will start the other approach to nanotechnology, in which we will be building things from the atomic level up."

Friedrich hopes that this research on these small devices will have a big impact in the future.

"It has been a challenge, but also very exciting because we are working in an area in which it is difficult to make, measure and work with the materials," said Friedrich. "It's interesting to dream up new applications for what we are doing. We are asking ourselves the 'what if' kinds of questions on a daily basis."

Source: Michigan Tech

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