

UNIVERSITY OF WISCONSIN – STOUT
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REQUEST FOR FUNDS:
NANOTECHNOLOGY: A REGIONAL PARTNERSHIP FOR EMERGING TECHNOLOGY

ORGANIZATION: UW-Stout, UW-Eau Claire, and the Chippewa Valley Technical College (CVTC) offer a unique combination of strengths that meet the fundamental educational needs of a highly educated and skilled workforce. This partnership is based upon a variety of collaborative efforts that are ongoing.

DESCRIPTION: It has been identified at the national level that large gaps typically exist between fundamental science research and new product development and production. Acting as partners, UW-Eau Claire, UW-Stout, and CVTC will be able to bridge this gap while leveraging each other's strengths to provide fundamental science research expertise and facilities, product development strategies, and production methods and training to existing and new businesses in Northwest Wisconsin. We propose capitalizing on existing expertise and to partner on new collaborative initiatives in the development of materials science degree programs that focus on materials science and nanotechnology. These multidisciplinary, integrated programs will provide a well-educated work force uniquely skilled in the integration of innovative materials science and nanotechnology applications into a wide range of industries in the upper Midwest, particularly those along the I-94 corridor. The strength of this partnership is the integration of mutually complementary expertise from each institution (see Figure 1): UW-Eau Claire has a well-established tradition of providing students research experience in the characterization and study of materials at the molecular to nanoscale levels, grounded in a solid background in the natural sciences and mathematics; UW-Stout has a long history of providing undergraduate students with in-depth experience in manufacturing technology and engineering and has recently responded to new societal needs by creating the Applied Science program that allows students and faculty to study and learn at the core of the three most prevalent emerging technologies of biotechnology, nanotechnology, and computer (or information) technology; CVTC offers students the opportunity to earn an associate degree in nanotechnology emphasizing hands-on experience. The three partner institutions will build on both existing and developing strengths to collaborate in the development of integrated fabrication and characterization facilities focused on the study of nanostructured materials: UW-Eau Claire will emphasize materials characterization and collaborative student/faculty research; UW-Stout will provide an emphasis on fabrication and processing in the areas of materials science, biotechnology, bioinformatics, packaging, and food science; and CVTC will emphasize training and practical experience in operating the instrumentation and equipment unique to materials science and nanotechnology. The proposed funding requests will enable UW-Stout to strengthen its ability to provide educational experiences in the areas of nano-bio.

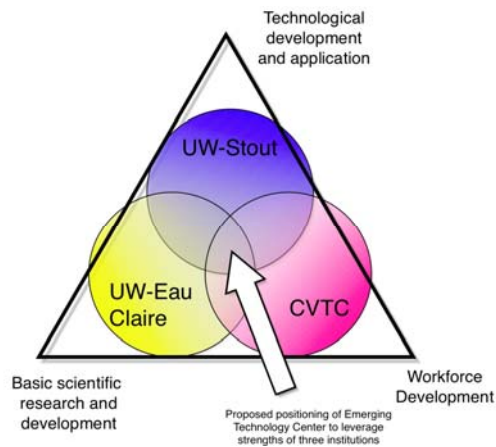


Figure 1

TIMELINE: UW-Stout will request funding for Fiscal Year 2007. Start-up Phase: January-March. Implementation Phase: April - October. Outcomes: November and December.

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PAST FUNDING: NONE TO DATE

BUDGET: Costs in FY 2007

Scanning Electron Microscope X-Ray Diffraction Detector	\$60,000
DNA/RNA Sequencer	\$120,000
Confocal Microscopy	\$40,000
Microarray Analyzer	\$80,000

Federal Funding Requested in FY 2007 \$300,000

SIGNIFICANCE: Emerging technologies are affecting our society at a rate like none ever experienced in the history of our society. Nanotechnology is an emerging and expanding technology because of great scientific discoveries in the past decade. A new realm of change is quickly emerging as the scientific discoveries in the field of nanotechnology are beginning to become a part of mainstream society. Businesses and industries will need to respond to these great technological advancements by relying upon a highly educated and skilled workforce. Northwest Wisconsin has tremendous economic growth potential because of its long tradition of high technology industries and location to world leading technology industries stretching from Chicago to Minneapolis. Wisconsin and Minnesota are world leaders in biotechnology, nanotechnology, and computer technology research and development and the application of these technologies in consumer products. The vast changes in technologies have placed a large demand on new and updated instrumentation and equipment. The requested funding is for instrumentation and equipment that will be specific to nanotechnology efforts. This facility development request will provide undergraduate students access to the necessary instrumentation and equipment needed for the new Nanoscience degree program which is scheduled to be implemented for Fall of 2007.

CONTACTS WITH

CONGRESS: Congressional representatives of the area are aware of the collaborative efforts taking place in the Chippewa Valley regarding Nanotechnology.