



Rushford Institute for Nanotechnology

By Kevin Klungtvedt

If you walk up to any six people on the streets of Rushford, MN, and ask if they have heard of nanotechnology, at least three of them would say yes – a respectable percentage. The average person doesn't know anything about nanotechnology. This is not true in Rushford.

When the University of Minnesota held a nanotech summit in April 2000, it invited educational institutions, businesses and cities to participate. A group of us from Rushford attended, and we found that our city was the only one participating in the event – and we're a small, rural city at that. We saw opportunity.

Between 2010 and 2015, nanotechnology will grow into a \$1-trillion-per-year industry in the United States, according to the National Nanotechnology Initiative (NNI, the federal agency responsible for the development on nanotechnology in the U.S.). We made the assumption that at least 20 percent of nanotech could be done in a small town, and so we determined, tongue-in-cheek, that 20 percent of a \$1-trillion industry was worth pursuing.

There are some unique aspects to nanotechnology, other than the basic technical advantages derived from working at the molecular level. It is the first technology that is being deliberately planned. After previous technologies established themselves, the government and society faced the task of dealing with the social, economic and environmental effects, such as the displacement of workers and new forms of pollution. While it is not possible to predict the exact direction of a new technology, it is possible to facilitate its implementation and to mitigate its negative impacts, by establishing the appropriate infrastructure.

Nanotechnology is revolutionary. Like the industrial revolution, it will affect all areas of industry and society. It is also the first nascent technology in which the United States does not have a commanding lead: It is truly a global technology. After studying information from NNI, our group concluded that bringing nanotechnology to small towns would not only invigorate rural economies, but also make nanotechnology more cost-effective, thereby helping the U.S. to compete in the global market

To accomplish this objective, the Rushford Institute for Nanotechnology has been formed, following closely NNI guidelines and suggestions. Two things are unique about the Institute. First, Rushford is one of the first small rural towns pursuing nanotechnology. Second, it may well be the only high-technology incubator (other than universities) with a research wing. Most sources we investigated indicated that if you don't do research into nanotechnology, you would not be doing production either. The Institute will support approximately six small start-up companies with the research incubator.

Besides supporting businesses, we are also attempting to start a technician training program. There is currently only one such program in the country. We are initiating a partnership with the Southeastern Minnesota Technical College in Winona to bring a program to Rushford. We also have made provision in the organization for achieving business support, conducting societal studies, and

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IEEE Section Meeting

*Kevin Klungtvedt
Rushford Institute for Nanotechnology*

Rushford Institute for Nanotechnology

*Monday, February 17, 6:30 pm
Mayo Medical Sciences Building
(321 3rd Avenue SW, Rochester)*

Pizza at 6:30; Meeting at 7:00

Kevin Klungtvedt is a senior project manufacturing engineer at TRW in Rushford, MN. At TRW he designs production lines for automotive products. He is also involved in electrical contact theory, and has written two papers for IEEE publications on the subject.

Kevin earned a bachelor's degree in electrical engineering at the University of Minnesota in 1983, and he has worked for TRW in Rushford for 17 years. He been an IEEE member for 12 years.

He volunteers his spare time helping to bring nanotechnology to Rushford. The nonprofit Rushford Institute for Nanotechnology is a part of the Rushford Community Foundation. Kevin is nanotechnology program coordinator for the foundation.

Science Fair Judges Needed

The Rochester Regional Science Fair will be held March 6-7 at John Marshall and Century high schools. If you would like to volunteer to judge for one or more of the three-hour sessions, please email sciencefair535@aol.com kasabatke@rochester.k12.mn.us. Alternately, you may call Karen Sabatke at 507-285-8701.

Judging instructions are provided, and judges get a free meal. Judges may request to judge projects in categories such as mathematics, biochemistry, computer science, etc.

developing educational programs in the community and local school system, as recommended by NNI. Two PhD-level researchers, a nuclear physicist, and one of the best high-tech business consultants in the state are members of our advisory board (which is separate from the Institute's governing board).

Currently we are in the funding stages of the organization. A lot of support has already been shown, even before the Institute has opened. The Rushford-Peterson school system has developed and implemented the first nanotechnology graduation standard in the nation. To raise awareness in the community, we are teaching a non-technical community-education course on nanotechnology.

One of the biggest challenges has been explaining the technical side of nanotechnology to non-technical business people. We have developed a business plan that we believe accomplishes this objective. Along with the community-education course and ancillary material, we believe we can relate our story to anyone with an interest in the subject.

Even before we have the project funded, one nanotechnology business, CIMA Nanotechnology, has decided to locate its production facilities in Rushford. Anyone interested in participating in the Institute or its activities is welcome to contact us for more information.



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