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UTD tying tech to profits

Nanosized company one of its first efforts

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In a move by the **University of Texas at Dallas** designed to help it pursue more aggressively the commercialization of its technology, it is creating a company that will try to market something called carbon nanotubes that are part of the school's previous research.

School officials say the company, called Solarno Inc., is in its infancy and is currently being housed in incubator space on campus.

Officials hope the two-employee shop eventually can show how carbon nanotubes can help cut the cost and weight of what are known as solar cells, which convert sunlight into electricity. Possible applications include everything from calculators to satellites.

"We're very excited," says professor John Ferraris, who is head of UTD's chemistry department and a co-founder of Solarno. "We welcome this opportunity to bring this technology into the commercial arena."

Ferraris launched Solarno with a UTD physics professor, Anvar Zakhidov, who is also deputy director of the school's NanoTech Institute.

UTD also has licensed its carbon nanotube breakthrough to a Cleveland company called Tursiop Technologies, which is using the discovery for antennas in medical imaging. No word yet on when any fruits of that licensing deal might come to market, but Ferraris says he hopes to have Solarno's work to market in fewer than five years. The license agreement gives UTD a small stake in Tursiop.

The creation of Solarno during the past 12 months is part of a stepped-up effort by UTD to get more of its research into the marketplace. Officials do not dispute that the school, like most Texas universities, has historically not done a good job of what is known as "tech transfer," or the commercialization of its discoveries.

To help address the problem, UTD appointed Robert Robb to head the office of technology commercialization, which opened in April. That, Robb and other UTD officials have said, should help sharpen the school's focus on technology transfer.

In addition to Solarno, UTD over the past year or so has also spun out a medical-device company called Microtransponder. Robb credits the school's Institute for Innovation and Entrepreneurship with playing key roles in the formation of both Solarno and Microtransponder.

Tom Franklin, senior scientific adviser at the North Texas Enterprise Center for Medical Technology in Frisco, says that even with such breakthroughs, how much licensing a university should be able to get out of its technology depends on a myriad of factors.

"The thing that drives the commercialization process is always money," says Franklin, who is also executive vice president of research and regulatory affairs at Frisco's Organ Transport Systems. "You must have your intellectual property captured so you control your destiny there. But you must have a value proposition that makes sense for the investors."

Building on earlier research

In 2005, UTD researchers led by Ray Baughman announced they had produced transparent sheets of carbon nanotubes, a discovery they said could lead to everything from artificial muscles to car windows that double as radio antennas and heaters.

Though they look like soot to the naked eye, carbon nanotubes are hollow cylinders made up of carbon atoms that are linked like graphite and capped at the ends.

The UTD group, which worked with researchers from Australia's Commonwealth Scientific and Industrial Research Organization on their discovery, said at the time that, if laid together properly, carbon nanotube sheets could produce sheets of that material that are roughly 40% stronger, on a weight-adjusted basis, than sheets of the strongest steel. (The Australian consortium co-owns the intellectual property behind the Baughman discovery.)

In addition, researchers said at the time that sheets of carbon nanotubes are transparent, flexible and can conduct heat and electricity. Among other things, that allows the sheets to be used as solar cells, researchers said.

Ferraris wants to use the discovery that Baughman and other researchers made to create electrodes made of carbon nanotubes. Those electrodes are part of solar cells, and will supposedly be lighter in weight and cheaper than current electrodes, which are currently made from a variety of materials, including metals.

Ferraris says that if the technology develops as planned, potential customers could include manufacturers of thin-film solar cells. He declined to name potential targets, but says the market for Solarno's products could be worth \$250 million to \$500 million by 2015.

To date, Solarno has been funded partly by loans from the two founders, and partly via some \$250,000 in grant money from the Houston Advanced Research Center. Ferraris says he expects the business will need to raise at least \$10 million more by 2012.

He also says the company will need to bring aboard seasoned professionals to handle the basic elements of running a business. "We fully intend to hire those people in the not-so-distant future," he says.

Robb, UTD's associate vice president for technology commercialization, says the university has an equity stake of less than 15% in Solarno.

"We gain by having them successfully commercializing the technology," says Robb, who doubles as the director of new venture development at UTD's Institute for Innovation and Entrepreneurship. "Our primary mission is not to try to gain too much financially from these things so as to inhibit their capability to go forward, raise capital and so forth. We're trying to be reasonable with respect to what equity stake we take with respect to the company."