



*Kent Murphy was one of seven who started up Fiber & Sensor Technologies 10 years ago. Today the company is called Luna Innovations and is one of the fastest growing firms in the state.*

## From Company President to Professor

**K**ent Murphy has seen university spin-off firms from three sides: as a graduate student starting up a company, as a faculty member, and as president of one of Virginia Tech's most successful spin-offs. Murphy was not a professor who started a business however, but a company president who became a professor.

Murphy is president of Luna Innovations, Inc. (formerly Fiber & Sensor Technologies), which develops advanced instrumentation and materials technologies. The firm's products include highly sensitive biosensors, harsh environment sensors, novel materials for use in microcomposites and high displacement actuators, microelectromechanical devices such as optical switches, micropumps and optical

interconnects, as well as thin films for polymer electronic and biochemical devices.

Luna's biosensor business is currently growing very rapidly. Luna biosensors are marketed for diagnostic applications, drug discovery, process monitoring, environmental monitoring, bioremediation, and point-of-care testing.

Luna has experienced increasing revenues every year for 10 years. Revenues in 1999, nearly \$9 million, were double those of 1998. The firm has 52 full-time employees, 12 part-time employees, and currently has 12 job openings. Luna is a large supporter of research at Virginia Tech and is second only to General Motors as a nongovernment funder.

When Murphy was a graduate student at Tech,

---

he was one of seven founders who started F&S in 1990. At the time, F&S was a part-time venture to build instrumentation based on fiber optics research. “People had read our results in published papers, and wanted to buy our instrumentation,” Murphy recalled. “At first they were giving us \$5,000 contracts to build the little EFPI boxes. That’s not really appropriate university research, so we were encouraged by the Virginia Center for Innovative Technology (CIT) and the university to start a company to market the instrumentation,” he said.

“I had tried to start another company that hadn’t turned out well and was very interested in trying

---

**‘From the beginning of a spin-off firm, we should be trying to benefit what is going on for education.’**

**—Kent Murphy**

---

again,” he said. After a very successful beginning, the company grew and needed a change of management. Murphy was voted president and ended as majority shareholder.

In 1992, a year after becoming president, Murphy earned his doctorate. “I then had to decide whether to continue as president of F&S or join the Virginia Tech faculty. I didn’t see why I couldn’t do both.”

Murphy joined the faculty and was awarded tenure in 1995, during which time he was managing the fast growth at F&S. “I worked more than 90 hours a week on a regular basis,” he said. “I had a great time.”

Working at both was synergistic, he said. “The business and my professorial duties were related. My university research was geared toward commercial activities. Moreover, the whole experience of being in the company helped build contacts in the industry, which helped tremendously in my research and funding.” The time, however, came out of his family life, he acknowledged.

As business heated up at Luna last year, Murphy chose to take a leave of absence from the university. “I was starting to pull 100-hour weeks. You cannot do all three. I had been doing two and neglected my family — I was unwilling to do that any longer,” he explained.

Murphy said he is certain that faculty start-up firms are good for the university, but that the rules and policies need to be determined and spelled out. “The university needs to benefit more by capitalizing on ideas,” he said. “When I started at Tech, all the people with all these great ideas would publish pa-

pers, which was considered the end result. The technology was left on the shelf or left for others to capitalize and reap the benefits. Coming from industry, I just do not understand that philosophy. If the university can capitalize on its own ideas, it can get the funding it needs and improve facilities and programs across all the curricula.”

One of the obstacles to the university capitalizing on its ideas is the research culture, he said. “As a professor, I was encouraged to publish, publish, publish. In a university, you are rewarded on how much you publish. However, my background was industrial, which tells you first to protect your ideas, get a patent, and then publish. I’ve had some tough decisions to make between the need to publish while knowing the need to build a patent portfolio, which is what builds value.”

As a professor, Murphy signed over all his royalties to Virginia Tech to be used for student support. “I very much would like to see the university benefit,” he said. “From the beginning of a spin-off firm, we should be trying to benefit what is going on for education. Royalties are just a part of the benefits spin-offs provide to Tech. There are many other benefits that can be achieved.”

Students benefit from nearby start-ups in two ways: by being funded for graduate studies and having the opportunity to get industrial work experience, he explained. Local spin-offs are also the ideal place for undergraduate co-op jobs, he said.

Not only does the university benefit from spin-offs, but the companies benefit also, he said. “Extremely talented individuals on campus are joining Luna — people with great ideas interested in seeing them commercialized.” Currently, Luna is funding projects in physics, chemical engineering, aerospace, chemistry, engineering science and materials, and materials engineering,

in addition to ECpE.

“Tech should be helping to build the state economy, and spinning off companies to capitalize on its research is one way to do that.”



***Research at Luna Technologies. Luna continues to develop new technology in biosensing, and has 11 patents with nine patents pending in the area.***