school of engineering news

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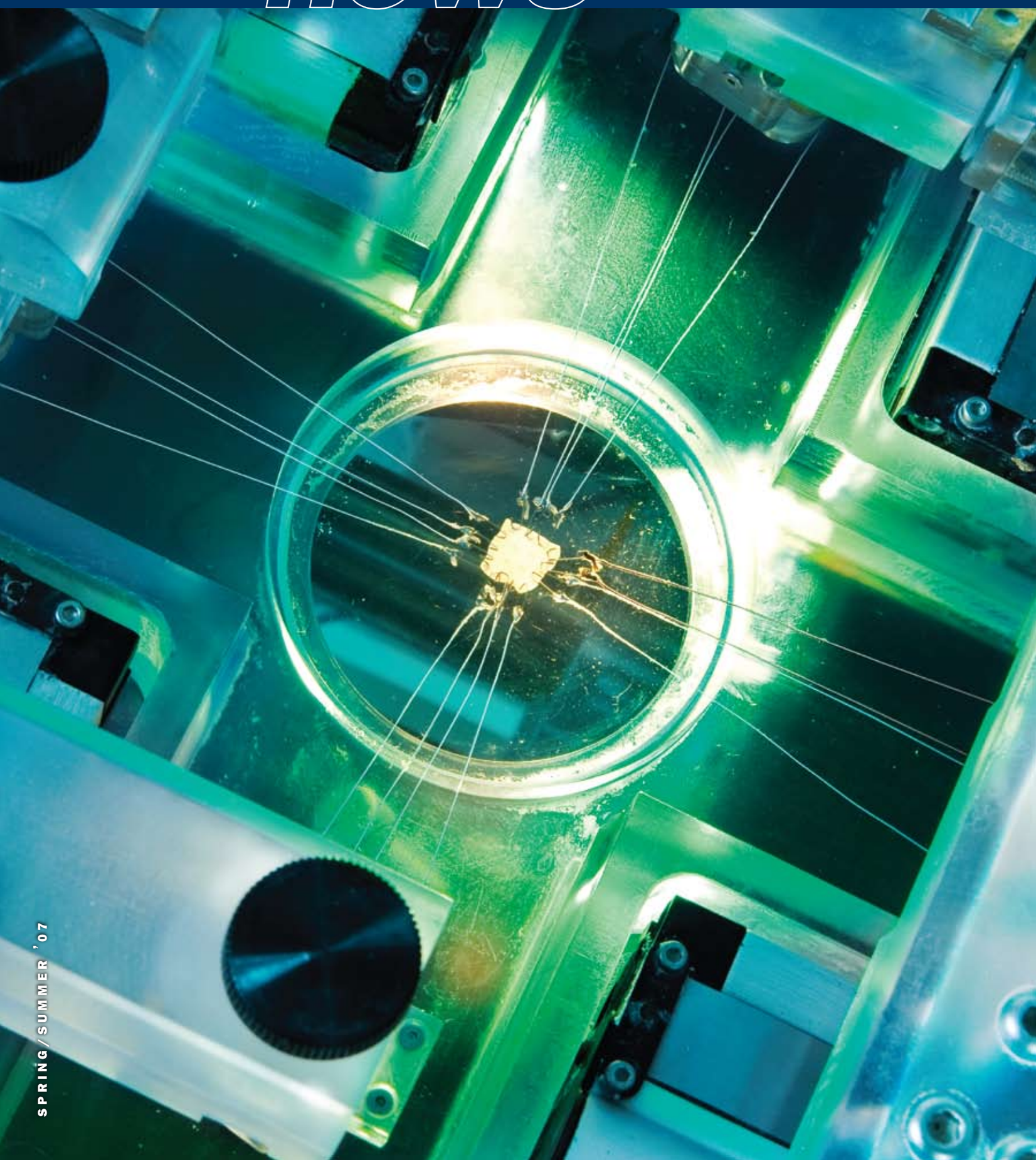

SPRING/SUMMER '07

IntraFirm Program Reconnects Alumni and Helps Pittsburgh Companies

The IntraFirm program is a special offering to local businesses where large numbers of School of Engineering alumni are employed. This was the second year of the program, during which participating companies hosted receptions for their employees to gather and hear from School of Engineering faculty and staff.

This year's meetings highlighted new educational and research programs relevant to each of the participating companies and their products or services. At Westinghouse, Associate Dean Michael Lovell provided an update on the new undergraduate and graduate certificate programs in nuclear engineering. At Mitsubishi Electric Power Products, electrical and computer engineering chair Bill Stanchina shared an update on new power engineering courses and research initiatives related to the electric power industry. And the presentations at FedEx Ground and H.B. Maynard & Co. both featured industrial engineering faculty members Bryan Norman and Jay Rajgopal, who discussed the latest research in radio frequency identification (RFID) and applications of this new technology in supply chain management.

Ken Smith of H.B. Maynard & Co. received the 2006–07 IntraFirm Volunteer of the Year Award from Carey Anne Zucca, director of alumni relations for the School of Engineering.

Thanks to the 2006–07 IntraFirm companies and lead volunteers

FedEx Ground

Craig Molinaro (BSIE '99)

MAYNARD

Ken Smith (Friend)

MITSUBISHI ELECTRIC POWER PRODUCTS, INC.

Greg Reed (PhD '97)

Westinghouse

Ken Balkey (BSME '72, MSME '80)

pitt engineering IntraFirm

If you would like your company to participate in the 2007–08 IntraFirm program, contact Carey Anne Zucca, director of alumni relations, at 412-624-9813.

Alumni Profile Pages

A Random Look at the Lives and Careers of Pitt Engineering Alumni

Pitt Engineer's Designs Reach Kitchens around the World (and Likely Yours, Too)

Following the life of **David Kusuma** practically requires the aid of a world map. That's one reason why it makes so much sense that he's now the lead product designer for a global company with a presence in more than 100 countries. As vice president of product development worldwide for Orlando, Fla.-based Tupperware Corp., it is his job to see that this icon of the American kitchen continues developing innovative, yet functional food storage containers, household gadgets, and other time-saving solutions for an increasingly global customer base.

Kusuma was born in New York, not long after his parents, who both are of Chinese descent, moved there from Indonesia. His father's job brought them to the United States, as he took an assignment at the United Nations headquarters in New York. Kusuma spent his childhood in many different places following his father's international assignments, which included stops in Ethiopia, Thailand, Lebanon, and Jordan. He attended high school in Connecticut and came to Pittsburgh to attend Carnegie Mellon University, where he earned a bachelor's degree in fine arts, specializing in industrial design.

"It is the designer's job to dream, but it is the engineer's job to say whether a designer's dream is possible. I'm fortunate to see this process from both sides."

He remained in Pittsburgh, working for Bayer Polymers as a design engineer from 1987 to 1998. Later that year, he transferred to Exatec, a joint venture between Bayer and GE Plastics, which was developing new polycarbonate windows and glazing technology designed to make safer and more lightweight windows for the auto industry. During this time, he also took the initiative to earn another bachelor's degree, this time in mechanical engineering from Pitt, which he completed in 2000.

David Kusuma

"Since I was working full time, I did not have the same campus experience as many of my traditional classmates, but I was active in Tau Beta Pi (the engineering honors society), and the overall education I received was excellent and has been invaluable to my career," Kusuma recalls. Plus, having both a design background and an engineering education gives him perspective from both sides of product development.

"It is the designer's job to dream, but it is the engineer's job to say whether a designer's dream is possible. I'm fortunate to see this process from both sides."

He joined Tupperware in 2001 as director of engineering for the U.S. and Latin American markets and was named to his current role the following year. He now oversees Tupperware's two design centers in Orlando and Belgium, where a mix of about 40 engineers and designers develop and test new Tupperware products for all worldwide markets. According to Kusuma, accounting for cultural differences in product design is critical.

"Products that may work well in a typical American kitchen can't simply be expected to sell in another country like India or Japan. We try to take into account cultural preferences related to functionality; aesthetics like colors and shapes; and even the materials, such as plastics, stainless steel, or composites."

Tupperware's reputation is built on developing unique products, but that also poses Kusuma's greatest challenge. "Rather than developing only products that meet basic consumer needs, our success is highly driven by designing products that create new needs. These are products that people did not realize they needed and now know they cannot live without," Kusuma says. "Many of our customers tell us about a storage item or household gadget that they were not necessarily looking to buy, but once they did and realized how much they needed it, they get hooked on the Tupperware brand. Simple but smart. This is what drives our innovation in design, and it's extremely challenging considering Tupperware's long history of innovative products."

But design and engineering aren't the only parts of the business Kusuma has to know. Before any new product is unveiled, he has to convince the company that there is a strong demand for it. Judging consumer demand isn't an exact science, Kusuma says, leading sometimes to unexpected results.

"In one particular case," he recalls, "we developed a totally new product with a flexible seal that Tupperware eventually called the Stuffables container. There was no precedent for this type of product, and when we presented the prototype, demonstrating the possibility to overstuff a container with this innovative seal, the feedback we received from the company was an unenthusiastic sales projection of 25,000 units in the first year. Despite this, we made the decision to proceed, and when it went on the market, Tupperware sold 600,000 units in just the first two months! Over the next year or two it also earned an unprecedented number of international awards!"

Kusuma envisions Tupperware products in the future will incorporate high-tech features, especially those targeting food conservation and food safety. He is pursuing this field firsthand, as a PhD student at Cranfield University in England. He uses his frequent trips to Europe to continue his doctoral studies, which focus on microbiology and the development of sensors and other new technologies as they relate to detecting bacteria and food spoilage.

"This represents the next generation of product design for our industry," Kusuma predicts, "and it holds the potential to dramatically enhance food safety everywhere."

Scholarship Gave Titanium Titan His Start—Now He's Giving Back

In the shadow of a steel plant in Latrobe, Pa., a 5-year-old boy once waited outside for his father, a steelworker, to finish his workday.

He grew up to become a standout student who had his pick of colleges; it was the owner of that mill, Vanadium Alloy Steel Co., who agreed to help pay for his education in the 1960s to study metallurgical engineering. And it was the University of Pittsburgh that found academic scholarships that would help **Edward F. Sobota** forge a career in titanium.


Edward F. Sobota

"They always used to say, way back when, that metallurgy was more of an art than a science," says Sobota, now president of the International Titanium Association as well as president and chief executive officer of TechSpec in Derry, Pa. "I was always a person who was very analytical, [but] it seemed that metallurgy and I fit very well."

At Pitt, Sobota built character in addition to his technical expertise. He attended classes "in the only five-story building on campus that didn't have an elevator," which had a melting furnace in the basement so students could learn their profession literally from the ground up.

He describes the faculty as "the old-time guys who were products of U.S. Steel and the mills," and adds, "It was quite an education; it was a good education."

In the basement furnace, students learned how to melt alloys and figure out the chemistry of the process. For a boy who literally was born into the business, there could have been no better preparation for a career in metal.

"We learned how to do a lot of things that were nontextbook things, and I think that kind of background was really what enabled me to embark on my own business," says Sobota.

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He learned to get grimy and enjoyed it: "That's what I always kind of liked about metallurgical engineering. It's a hands-on business. You don't just sit in an office, even after this many years in the business. Everybody wears a lot of different hats, and everybody always gets dirty."

After graduating in 1967 with a BS in metallurgical engineering, Sobota returned to the mill where his father worked and repaid his debt by working there for four years.

"It was a place I knew, and obviously I felt a little bit bound to work for them," he says.

But by the time the 1970s rolled around, small steel companies were becoming an endangered species. When conglomerates took over, Sobota saw friends with 10–15 years of experience getting pink slips. He decided that he didn't want to live in fear of getting laid off, so he turned back to Pitt, earning a master's degree in teaching at night while simultaneously working a full-time job.

He took a job teaching math, chemistry, and advanced chemistry at Ligonier Valley High School and started a consulting business on the side that capitalized on one of his duties at Vanadium Alloy Steel: monitoring titanium products that other companies had sent in for processing. Sobota served as a technical consultant, contracting out his services. He struck out on his own completely in 1974.

The venture was successful for about nine months, until one of his biggest clients decided it wanted a full-time employee to do the job instead of a contractor. Back on his own, and with a wife and new family to support, Sobota was worried—until he caught a lucky break and the client asked him to come back. He agreed, but only if he could remain completely independent. It was, he recalls, "the gutsiest move of my life." But from that point forward, his company, TechSpec, was on its own for good.

The company evolved from strictly consulting and soon included processing; it began marketing its own product in the early 1980s and grew from a bedroom office to a firm with nearly 50 employees.

"We're kind of a name in the marketplace, and we've been in the titanium business for well over 30 years," says Sobota. His wife, Diane, runs the accounting end of the business. Their sons, Edward Allen and Michael, followed in their father's engineering footsteps, the younger Edward as vice president of operations at TechSpec and Michael at W.L. Gore & Associates in Delaware.

Sobota believes the biggest challenge in his business is keeping up with demand. Though expensive, titanium is a unique metal with applications across every facet of the energy, transportation, public service, and petroleum industries. Sobota himself is living proof of its use in medical applications.

"I'm a product of my own profession," he says. "I have a titanium knee and a titanium hip."

TechSpec boasts one of the best titanium finishing facilities in the country; when he speaks of it, Sobota recalls that melting furnace in the basement at the School of Engineering.

"My hat's off to the professors that I had at Pitt," he says. "Knowledge is a compilation of your experiences, and mine really all started back there."

To show his appreciation for getting his start at Pitt, Sobota established the Edward F. Sobota Engineering Legacy Fund in 2006 to benefit materials science in the School of Engineering. Engineering Legacy Funds are permanently endowed funds that generate unrestricted income in perpetuity. By establishing this fund, this "titanium titan" knows there will always be a fund in his name helping to give future generations of Pitt engineers the same experience he needed to succeed.