

Twin Photonics Centers Funded by High-Tech Entrepreneur

Undecided whether to donate \$25 million to Duke University or Stanford University, Michael Fitzpatrick and his wife Patty doubled the stakes and gave that sum to each. The money is tagged for two new photonics centers to help advance the development of optical electronics.

"We're moving from an electronic world to an optical world," says Fitzpatrick, a veteran of numerous startups and currently a partner at Seabury Venture Partners in Burlingame, California. New applications for photonics are being developed in areas such as biomedical engineering, three-dimensional visualization, and wireless and optical networks. Such networks are expected to result in a higher performance Internet, says Fitzpatrick. "The only technology that can solve the bandwidth problem is photonics."

"There's been explosive growth in the industry," says David Miller, an electrical engineer from Stanford who is director of the university's new Fitzpatrick Center for Photonics. Attendance at optics conferences has skyrocketed in the past couple of years, but the US still only produces about 100 photonics PhDs annually, he says. "We are not even close to meeting the demand for people." (See PHYSICS TODAY, May 2000, page 25.)

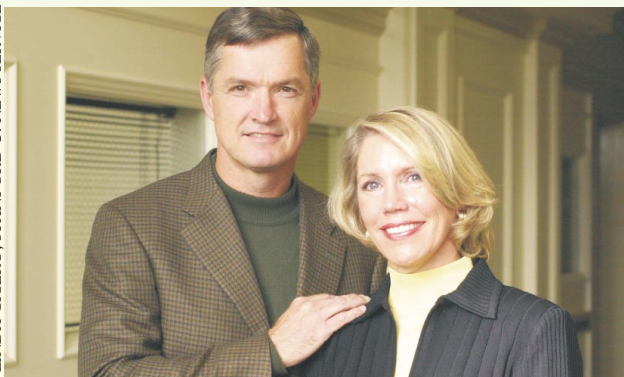
The Fitzpatrick photonics centers will aim to fill that gap. Eventually the centers will house about 200 researchers each and offer undergraduate, master's, and doctoral programs, student scholarships, and short courses for industry and government engineers. Both universities have begun beefing up their photonics curricula, hiring new faculty, and forging tighter ties with industry. Partner companies will help determine research directions, and will provide internship programs, equipment, and funding.

Each center will cost about \$100 million, with university and industrial contributions fleshing out the Fitzpatricks' seed money. Despite the recent dot-com bust and economic slowdown, confidence in photonics growth remains high, says David Brady, an electrical engineer who moved from the University of Illinois at Urbana-Champaign to become the Duke center's first director. Also joining the Duke center, to found a new visual analysis laboratory, is Brady's wife, Rachael, who was director of Illinois' Integrated Systems Laboratory.

Creating such centers, says Stanford dean of engineering James D. Plummer, "is a strategy we often use when there's an emerging research area that's interdisciplinary. It's a way to be flexible and collect people around research themes." Adds Brady, "We don't want to create a new discipline; photonics is the bridge between the physical, biological, and information sciences and we want to make it so people can move where their research takes them."

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MICHAEL AND PATTY FITZPATRICK are seeding photonics centers at Stanford and Duke universities.

Private Money Launches Institute Melding Particle Physics and Cosmology at Stanford

When Jonathan Dorfan, director of SLAC, decided to create an institute for nurturing the overlap of particle physics, astrophysics, and cosmology at Stanford University, he didn't have to look far for funding: This spring, Silicon Valley entrepreneur Pehong Chen and his wife Adele pledged \$15 million to launch the Pehong and Adele Chen Particle Astrophysics and Cosmology Institute.

"It's clear to everyone that the agendas of particle physics and cosmology and astrophysics have become very intertwined," says Dorfan. For example, at SLAC's B Factory, which smashes together electrons and positrons of unequal energies, "we are reaching further back in time, answering questions of how the universe was born." The new institute, Dorfan adds, "is a way to combine the disparate efforts at SLAC and on [Stan-



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PEHONG CHEN (center), Jonathan Dorfan (left), and Stanford University president John Hennessy celebrate the announcement of the Pehong and Adele Chen Particle Astrophysics and Cosmology Institute.

ford's main] campus—a focal point for faculty and young people that will be a mixing pot for ideas and cross-fertilization."

The Chens' gift will endow the directorship of the institute—the only new job—and pay for a building to house some 90 people, including 10 faculty members drawn from both theoretical and experimental physics, postdocs, students, and support staff. Dorfan is raising additional money for running costs and for prestigious, highly paid postdoctoral positions. As with the Chen donation, he's seeking private money "for expediency."

For his part, Chen, president and CEO of the Redwood City, California-based software company BroadVision, is funding the new institute because "we in the high-tech industry are the direct beneficiaries of fundamental research. It's a good investment, and more recently, it seems to be ignored."

Fraternal appreciation also contributed to the Chens' largesse: Chen's older brother, Pisin Chen, happens to be a physicist at SLAC. "He was very inspirational when I was growing up," Pehong Chen says. After Pisin came to study in the US in the 1970s, for example, he used to send physics problems to Pehong, who was still in their native Taiwan. "Although [my brother] didn't succeed in luring me into studying physics, I have always had great admiration for physicists whose discoveries have provided the basis of most modern technologies, and also have revolutionized our concepts about space, time, matter, and the universe," says Chen. "An interesting set of twists and turns has given me the opportunity to help."

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