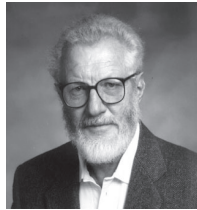




## **and UCSB a win-win partnership for over three decades**

For more than 30 years, UCSB and Teledyne Scientific and Imaging (TS&I) have successfully worked together to produce products in electronics and other leading-edge communications technologies both for consumer markets and for the aerospace industry.

Collaborations with TS&I have involved a significant array of faculty, from Nobel Laureate and physicist Herbert Kroemer to electrical and computer engineer Mark Rodwell. Over the years, Kroemer worked with TS&I on the semiconductor gallium arsenide developing high-speed electronic devices. One of these was the GaAs heterojunction bipolar transistor (HBT).



**Herbet Kroemer**  
Professor Physics and Nobel Laureate

Initially funded by the military, the HBT ended up filling a commercial niche in cell phones. Rodwell's research, also in high-speed electronics, has yielded more than \$100 million in federal research funding to generate the next generation of devices aimed at terahertz frequencies. Eleven faculty members have collaborated with TS&I in recent years.

"We have a number of university collaborations, but the most significant one by far is with UCSB," said Bill Gunning, Teledyne Scientific & Imaging's chief scientist. Because of Teledyne's past successes with UCSB, the company chose to become a Corporate Affiliate more than a year ago and work through the Affiliates program to explore new areas for collaboration. The Affiliates program works with companies to facilitate access to faculty, campus research centers, matching research funding programs, and facilities.

Through the Affiliates program, TS&I was introduced to UCSB's Institute for Collaborative Biotechnologies (ICB). Within five weeks of joining the ICB, TS&I's Information Sciences Division submitted

a proposal with electrical and computer engineer Joao Hespanha. The result was a \$2.1 million, three-year project with Hespanha and Teledyne. Teledyne has visited the campus quarterly and has future projects planned with faculty in the ICB and within the Marine Research Institute.

Like many companies, Teledyne has benefited not only from research collaborations, but from the "human resources" and expertise found on campus. Two-thirds of the people in the Electronics Division of TS&I are UCSB alumni. The director of the division, Bobby Brar, was a student of Herb Kroemer before graduating from UCSB. Three other members of TS&I's management team are from the campus: Chanh Nguyen, director of operations in Electronics; Jose Arias, director of Operations in Imaging, and Janet Davis, manager of Ceramic Composites.

"It's been a win-win relationship all these years," Gunning said. "We're able to bring additional work to the university, which provides a good training ground for the students. Conversely, TS&I can seek out some of the best young minds to bring into the TS&I family once they earn their degrees."



**Mark Rodwell**  
Professor Electrical and Computer Engineering

TS&I is a division of Teledyne Technologies Incorporated, a leading provider of sophisticated electronic components, instruments and communications products, including defense electronics, data acquisition and communications equipment for airlines and business aircraft, monitoring and control instruments for industrial and environmental applications and components, and subsystems for wireless and satellite communications. The company reported sales of \$1.9 billion in 2008.

*To learn more about how your company can work with UC Santa Barbara, contact Leslie Edwards (805-893-3944/edwards@engineering.ucsb.edu) or Andrew Elliott (805-893-5497/elliott@engineering.ucsb.edu) in the Corporate Affiliate Programs office.*

*industry.ucsb.edu*