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Partners' Update

Center for Quantum Devices is ready for industry

Manijeh Razeghi, Walter P. Murphy Professor of Electrical Engineering and Computer Science, has the new Center for Quantum Devices in full operation in record

time. After only six months of operation, the center already has engaged in research on semiconductor lasers and materials for infrared, ultraviolet, and visible light detectors.

Its focus areas are quantum devices for optoelectronics and telecommunica-

tions. The center builds components for its devices. All stages—design, fabrication, analysis, measurement, and assembly—are performed within the lab. With the use of a metallorganic chemical vapor deposition (MOCVD) reactor Razeghi brought from her previous work in France, the center is able to create its own semiconductors. The MOCVD process allows atom-by-atom control as atoms of different elements are layered on top of each other to create semiconductor chips.



Manijeh Razeghi

Before coming to Northwestern, Razeghi spent 10 years as the head of exploratory material for quantum devices for Thomson CSF in Orsay, France. While there, she was the first person in the world to use MOCVD techniques to produce 1.3-micron and 1.5-micron lasers for optical fiber telecommunications systems. Her work earned her the 1987 IBM Europe Science and Technology Prize.

Because of her work in industry, Razeghi puts a special emphasis on industrial applications for the center's research.

"The most important problem in Europe and the United States in comparison with Japan is the big gap between research and production," she believes. In Japan, R&D and production take place side by side, often with the same scientists. That is not usually the case in the United States.

"Most universities want a paper," says Razeghi. At Northwestern, "We want a product to give to industry and to make a student usable by industry. Universities can do low-cost research. Our PhD candidates are trained [for R&D] as they do their dissertations, and industry can profit from the excellent student environment."

Razeghi says her goal is for the Center for Quantum Devices to be the "center of gravity" for the best-quality research and students in the optoelectronics, telecommunications, and semiconductor fields.

For more information on the Center for Quantum Devices, please contact the Tech Corporate Partners office.