

## DREAM Team Applies for Patent

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When Melissa Schillo arrived at Drexel University in the summer of 2004, she expected to expand her engineering knowledge and to focus on research. She did not expect her summer experience to change her outlook on her future and for her research to turn into an important component of a patent application.

Having just finished her sophomore year at Ohio State University, Melissa came to Drexel University to participate in the NSF-sponsored REU Site DREAM: Drexel Research Experience in Advanced Materials. Working with Drexel University's Ceramic Processing and Sensor Group under the direction of

Dr. Wei-Heng Shih and Dr. Wan Shih and graduate student Hui Li, Melissa synthesized nanocrystalline cadmium sulfide (CdS) particles, also known as quantum dots, that are able to emit visible light when excited by an ultraviolet light. The project, partially supported by NIH and NTI and entitled "A novel synthesis of CdS nanoparticles using an aqueous solution to promote environmentally friendly methods," proposed to make the quantum dots by a simple procedure in an aqueous solution that is low in cost and has the potential for use in medical applications. It is the hope of the researchers to eventually use the quantum dots for the detection and tracking of diseases, such as cancer.

The group's work resulted in the patent application, W.-H. Shih, H. Li, M. Schillo, and W. Y. Shih, "Synthesis of Water Soluble Nanocrystalline Quantum Dots and Uses Thereof," U.S. Patent application No. 60/573,804, May 24, 2005.



*DREAMer Melissa Schillo uses a balance to weigh chemicals for her work on the synthesis of nanocrystalline semiconductor CdS particles (quantum dots) in DREAM Mentor Dr. Wei-Heng Shih's lab. Melissa's work was included in a patent filed in May 2005 entitled, SYNTHESIS OF WATER SOLUBLE NANOCRYSTALLINE QUANTUM DOTS AND USES THEREOF.*

Melissa found the project to be exhilarating and exciting: “The idea that really boggles my mind is that one day this creation could actually help save someone’s life,” she mused.

The REU Site was the first time she was exposed to hands-on research. Her experience with her mentors at Drexel has motivated her to apply for graduate school in engineering. In Melissa’s own words, “The REU program really opened my eyes to the exciting parts of engineering. My experience with Dr. Wei-Heng Shih and Dr. Wan Shih was very special. I can honestly say that it gave me a new perspective on engineering and life in general. The work was thrilling and inspiring.”