Engineering Assistant Professor Wins National Teaching Award

College of Engineering
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Erica L. Corral, assistant professor of materials science and engineering [1] at the University of Arizona, has been given a national award in recognition of her “dedication to training and mentoring young people in materials science and engineering through educational outreach efforts.”

Corral’s ability to convey knowledge and enthusiasm of materials engineering to her students has earned her the 2011 Bradley Stoughton Award for Young Teachers [2], an award given to professors in materials science and engineering by ASM International, a society of materials scientists, researchers and technologists.

The recognition is for excellence in the teaching of materials science, materials engineering, design and processing, as well as for encouraging young teachers in these fields. Only one award is given per year, and the candidate must also be strong in research.

The award is the first for any UA materials science and engineering faculty member since it was established by ASM in 1952.

"This is what we mean when we talk about lifelong learning," said Jeff Goldberg, dean of the College of Engineering. "Erica is part of a core group of faculty members that excel at teaching, and we use them in our key first- and second-year undergraduate courses.

"If we can strengthen learning of the basics, then we can move forward to more advanced material with confidence â€” even if that move is after graduation," Goldberg said.

The Bradley Stoughton Award is given to instructors 35 years of age or younger and is accompanied by a $3,000 stipend. Awardees are nominated by their university dean and department head, and a nomination typically includes evaluations and comments from 12 students and peer evaluations from five materials science and engineering faculty.

Corral has been with the UA since August 2008 and is the first UA faculty member in materials science and engineering to receive a National Science Foundation Faculty Early Career Development award. Her current research on oxidation behavior of ultra-high-temperature ceramic composites has been funded for five years by the NSF.

Corral also is one of only three early career scientists and engineers in the U.S. to receive both an NSF career award and an Air Force Office of Scientific Research Young Investigator Program Award.

Corral and her research team develop high-performance ceramics and composites for use in protecting equipment in extreme environments and other applications. Recently, her team's
research collaboration with Rensselaer Polytechnic Institute in Troy, N.Y., discovered new fracture resistance mechanisms in ceramic composites that incorporate graphene reinforcements. The research was published in the journal ACS Nano in 2011.

The *Corral Laboratory* [3], located in the Arizona Materials Laboratory, is one of the key centers for engineering high-temperature materials in Southern Arizona. Its technical capabilities include high-temperature oxidation testing, ceramic powder processing and metallographic preparation.

Corral’s bachelor’s degree in metallurgical and materials engineering is from the University of Texas at El Paso, and her doctoral degree in materials science is from Rice University. Before joining the UA materials science and engineering department, she was at the Sandia National Laboratories in Albuquerque, N.M.

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